

UNifloc A 12

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1 Introduction

This chapter contains the information about the work with the operation manual.

1.1 About the Operation Manual

The operation manual is a part of the machine and is to be kept at the machine. The instructions from the third-party suppliers are also to be kept at the machine.

The operation manual can be identified through the material number and the editorial version. The identification properties are specified in the legal notice.

1.2 Availability of the Operation Manual

The machine owner must make sure that the personnel read and understand the operation manual correctly. The machine owner must make sure that the personnel that are involved in all machine works have easy and fast access to the operation manual always.

1.3 Used Conventions

The writing conventions that are used in this manual are as follows:

Writing Convention		
Name	Example	Description
Section information	Chapter 1, 1.1, 1.1.1	The chapter numbers are given in a sequence. The chapter number starts with the number 1.
Figure number	<i>Figure 1</i>	The figure numbers are given in a sequence. The figure number starts with the number 1.
Callout	1	The elements in the figure are identified with position numbers.

1.4 Intended User

Only Rieter approved personnel are permitted to operate the machine, to do the maintenance work, and the repair work at the machine. The personnel must know the content of this operation manual and how to find the related information.

1.5 Liability

If against to regulations, the assembly of new or actual facility is done by a third party, Maschinenfabrik Rieter AG (called Rieter) declines all liability.

The auxiliary agents supplied by Rieter such as crane, caster jack etc. is to be used only in the area and for the types of machine intended and for no other purpose. Rieter declines all responsibility for any damage due to inappropriate usage of the auxiliary agents.

If the machine is used for any purpose other than for which it is intended, Rieter declines all liability.

2 Safety

This chapter contains the information about:

- The general safety information
- The intended users
- The location of the safety labels
- The safety equipment
- The danger zones

2.1 General Safety Information

This chapter contains information about the machine safety.

All personnel that do work at the machine must know and obey the safety instructions.

This machine has a state-of-the-art technology and supplies a high standard of operational reliability.

The standards and directives applied during design, production, and configuration are recorded in the EC / EU Declaration of Conformity and the manufacturer's declaration.

Also, the national safety regulations, the mill safety regulations, and the accident prevention regulations that are applicable must be obeyed.

Non-Observance of Safety Instructions

Rieter is not liable for damage that is caused by the non-observance of the safety instructions, in particular for damage that is caused because of:

- The machine is used for different purpose than the machine is made for.
- Incorrect operation
- Incorrect selection of materials and tools
- Not sufficient or missing maintenance work and repair work

2.2 Safety Messages

The safety messages contain a signal word, a safety symbol, and the safety instructions.



DANGER

If the safety instructions are NOT obeyed, the situation causes death or irreversible injuries.

**WARNING**

If the safety instructions are **NOT** obeyed, the situation can cause death or injuries.

**CAUTION**

If the safety instructions are **NOT** obeyed, the situation can cause small injuries.

**NOTICE**

This signal word shows that the user must obey the given procedure or message to prevent a property damage.

Structure of the Safety Messages

Each safety message contains the elements that follow:

- Safety symbol
- Signal word
- Type and source of the danger
- Consequences of the danger if not prevented
- Instructions to prevent the danger

2.3 General Safety Instructions

The basic safety instructions that follow must be obeyed:

1. Give the machine key and the password only to the approved personnel.
2. Only approved personnel are permitted to operate the machine.
3. Operate the machine only in a damage-free condition.
4. Stop the machine to change, to install, to remove, to do maintenance work, or to repair the machine or machine components. Set the main switch to the position OFF. Padlock the main switch.
5. Keep the machine floor, the platforms, and the ladders cleaned from grease, oil, and other fluids.
6. Do not climb on the machine.
7. Always wear personal protective equipment.
8. Bind the long hair.
9. Do not wear:
 - Finger rings
 - Wristwatches

- Scarves
- Loose cloths

Safety Devices and Monitoring Devices

Only approved personnel are permitted to remove the safety devices and the monitoring devices. Before the devices are replaced, the approved personnel must make sure that the main switch is set to the position OFF, the main switch is padlocked, and the power supply is disconnected. Modifications that are not approved can cause death, injury, or property damage.

The instructions that follow are to be obeyed:

1. Do not make the safety devices short-circuit.
2. Make only approved modifications.
3. Do not assemble the machine again without an approval.
4. Examine the correct function of the safety devices before the machine starts to operate.

External Transportation System

The safety requirements for an external transportation system are to be obeyed by the operating company.

The operating company must make sure that the warning signs, the mandatory signs, and the prohibition signs are possible to be read.

2.4 Emergency Report

The accident is reported as follows:

- Who calls?
- What occurred?
- Type of injury?
- When?
- Where?
- How many persons have an injury?
- Do other dangers occur?

If an accident occurs:

1. Do the first-aid treatment.
2. Call the local emergency center.

2.5 Personal Protective Equipment

The personal protective equipment that follows is to be used:

Symbol	Information
	Safety helmet Use a safety helmet to prevent head injuries. Refer to the standard EN 397:2012+A1:2012.
	Eye protection Use an eye protection to prevent the eyes from particles that occur during the work at the machine. Refer to the standard EN ISO 166.
	Ear protection Use an ear protection to prevent the ears from high-volume noise. Refer to the standard EN 352.
	Respiratory protection Use a respiratory protection to prevent the respiratory tract from dust. Refer to the standard EN 149:2001+A1:2009.
	Safety gloves Use cut-resistant safety gloves that have a flexible, impact-resistant layer to prevent the hands from cut injuries. Refer to the standard EN 388:2003. Use chemical-resistant safety gloves to prevent the hands from injuries by chemical materials. Refer to the standard EN 374. Use heat-resistant safety gloves to prevent the hands from burns. Refer to the standard EN ISO 407.
	Safety shoes Use safety shoes to prevent the feet from injuries and the personnel from electric shocks. Refer to the standard EN ISO 20345 (category S3).

2.6 Preventing Damage of Electronic Components

Electronic components are sensitive to electrostatic charging.

1. Discharge on grounded metal parts before you get in contact with electrical components. Use a grounding wristband.
2. Touch electronic components only if necessary.



Figure 1: No touch of electronic components

3. Do not touch the pins or parts of the printed circuit board of electronic components.

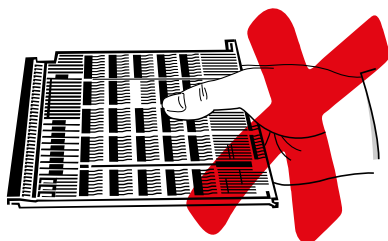


Figure 2: No touch of pins or tracks of electronic components

4. Prevent that electronic components touch chargeable objects (for example, synthetic materials).



Figure 3: Electronic components and chargeable objects

5. Do not keep electronic components around computer screens. Keep a distance of a minimum of 10 cm between the electronic component and the computer screen.



Figure 4: Electronic components around computer screens

2.7 Fire Protection

Fire can occur during the processing of textile materials.

The fire starts because of different causes as for example:

- Smoking
- Contact of the cotton with hot bearings
- Sparks that occur during the grinding of metals or because of a short circuit

The personnel must know how to operate the manually operated extinguishing systems for fire-fighting purposes.

The instruction of the personnel about the extinguishing systems and about the escape procedures is necessary.

The standards of the local fire protection authorities are to be obeyed to operate the fire extinguishing systems.

To prevent trash particles, dust, and fibers from explosion:

- An air circulation system must be installed especially in the areas of fiber operation.
- The pipe system that moves the fibers must be grounded.
- Dust and fibers must be removed regularly.
- A vacuum cleaner is to be used.

2.8 Safety Circuit and Safe Torque Off (STO)

The safety circuit has sensors, operating elements, and actuators.

The safety circuit is used for the protection of the personnel, the environment, and the equipment.

The electrical documentation contains information about the safety circuit connections.

The parts of the safety circuit are as follows:

- Emergency stop buttons
- Safety limit switches at the doors and the hoods
- Safety relays
- Frequency converters and control systems of stepper motors with integrated functional safety properties

Functional Safety Properties of Frequency Converters and Control Systems of Stepper Motors

Abbreviation of the Safety Property	Designation of the Safety Property
STO	Safe Torque Off
SOS	Safe Operating Stop

Abbreviation of the Safety Property	Designation of the Safety Property
SBC	Safe Brake Control
SS1	Safe Stop 1
SS2	Safe Stop 2
SSM	Safe Speed Monitor
SLS	Safe Limited Speed
SDI	Safe Direction

Safe Torque Off (STO) (EN 60204-1)

The STO function makes sure that the torque-generating energy has no effect on the motor. The STO prevents an automatic start-up of the motor. The controller of the motor monitors the operating state.

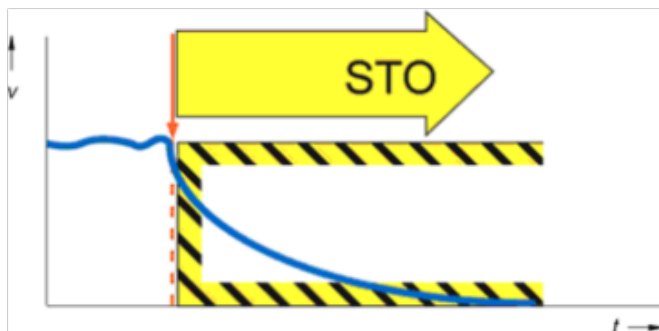


Figure 5: Safe torque off

Safety Instructions for the Maintenance Work

1. Do not open the components in the safety circuit. Do not change the safety circuit.
2. Replace the defective safety components with total work units only.
3. Only the manufacturer or an organization (Rieter Repair Station) that has a written approval repair the safety devices.
4. Obey the necessary steps in the chapter "Maintenance" in the operation manual.

After the Replacement of a Safety Component

1. Do the function test of the safety circuit. *Inspection Tasks* ▶ 173
2. Record the replacement and the function in the protocol of the safety circuit in the electrical documentation. *Protocol for the Safety Circuit* ▶ 163

Exclusion of Liability

The standards in the operation manual are to be obeyed. Opened or changed safety devices can cause injuries to the personnel or damage at the machine.

If the changes that are not approved are done at the safety devices, the warranty by Rieter is not applicable.

The customer has full responsibility for the costs that are caused by the changes that are not approved at the safety devices.

2.9 Product Safety

This chapter contains the information about the product safety.

2.9.1 Safety Symbols at the Machine

The safety symbols identify the danger zones at the machine. If the safety symbols are not at the machine, the possible risk of injuries to the personnel is not possible to be identified.

To see the safety symbols easily, the safety symbols must always be on the surface of the machine. The safety symbols are not to be removed from the machine. No cover must be on the safety symbols.

Safety symbols that are not discernible must be replaced.

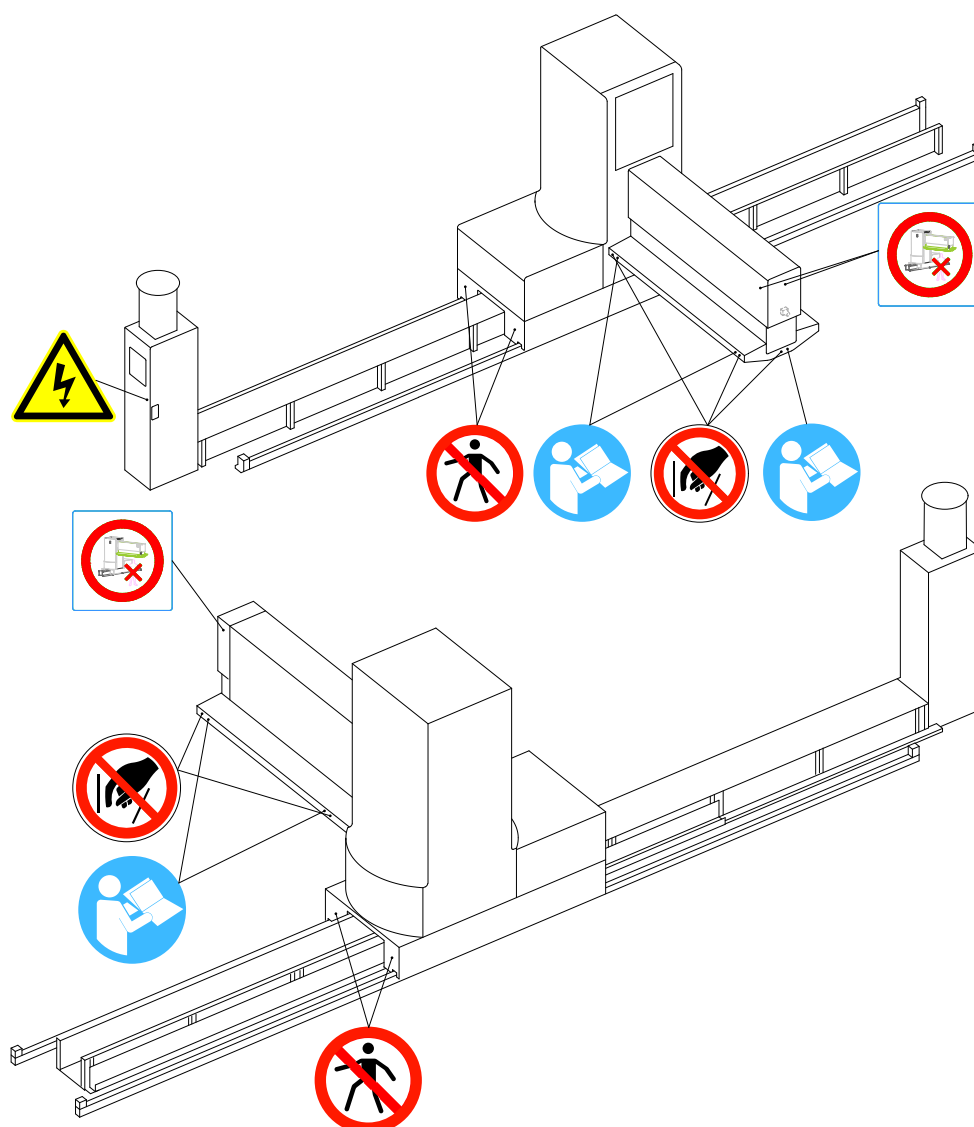


Figure 6: Machine without magnetic retrofit set

Safety Symbol	Description
	Caution! Do not stay below the take-off unit!
	Read the manual or instructions: – Operating manual – Instruction manual from other manufacturers

Safety Symbol	Description
	Caution! Do not get in!
	Caution! Do not go near!
	Caution! Electric Shock!

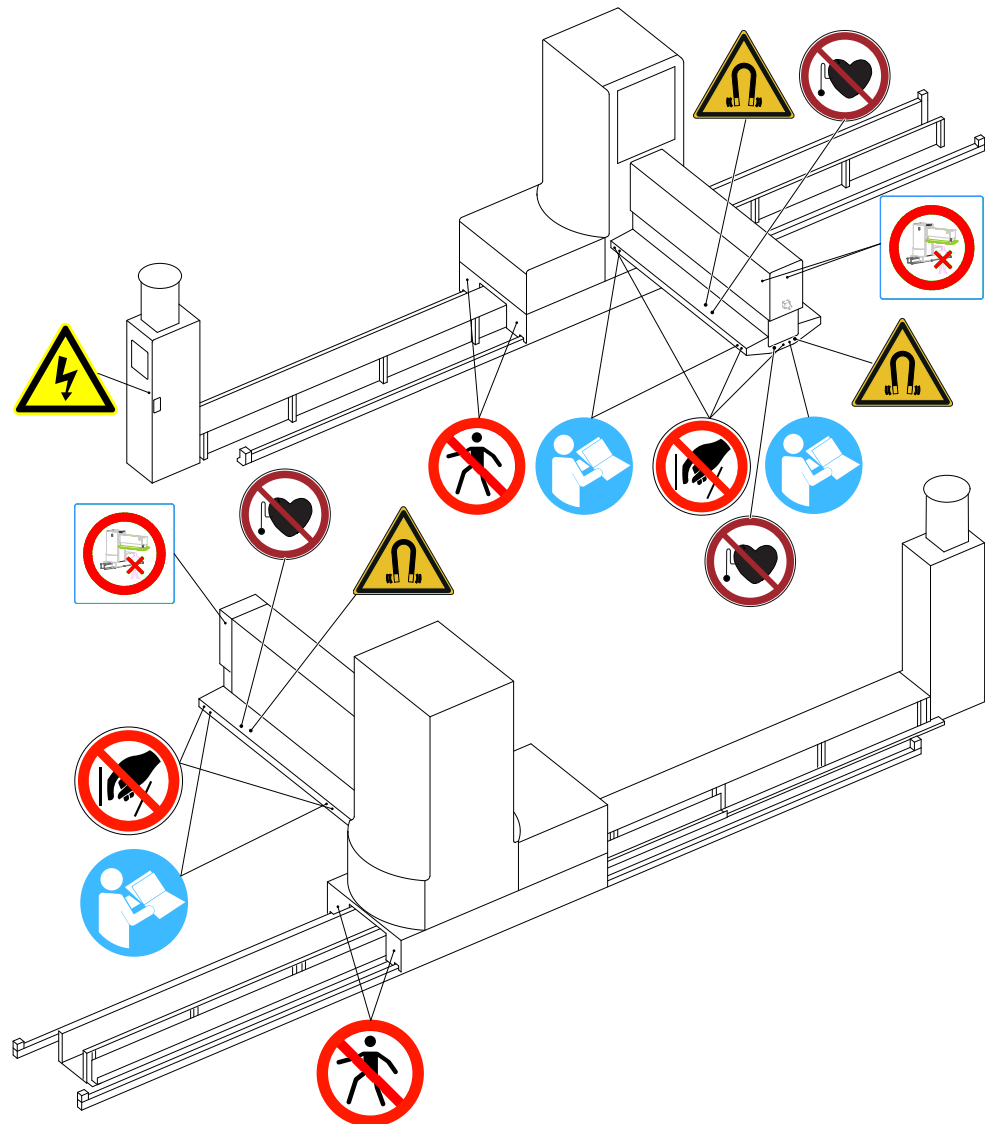


Figure 7: Machine with magnetic retrofit set

Safety Symbol	Description
	Caution! Do not stay below the take-off unit!
	Read the manual or instructions: – Operating manual – Instruction manual from other manufacturers

Safety Symbol	Description
	Caution! Do not get in!
	Caution! Do not go near!
	Caution! People with heart pacemaker should not come near!
	Caution! Magnetic region!
	Caution! Electric Shock!

2.9.2 Danger Zones at the Machine

This section contains the information about the danger zones at the machine. The machine has 2 types of danger zone, including the mechanical danger zone, and the electrical danger zone.

Work in the electrical safety zone is only accepted when the main switch is in OFF position and padlocked.

2.9.2.1 Mechanical Danger Zones

The illustration that follows shows the 2 mechanical danger zones (1 and 2). During production, the operating personnel are not permitted to stay in these 2 mechanical danger zones. The mechanical danger zones are secured with a safety chain 3.

Mechanical parts (take-off unit) movement can be dangerous in these 2 zones.

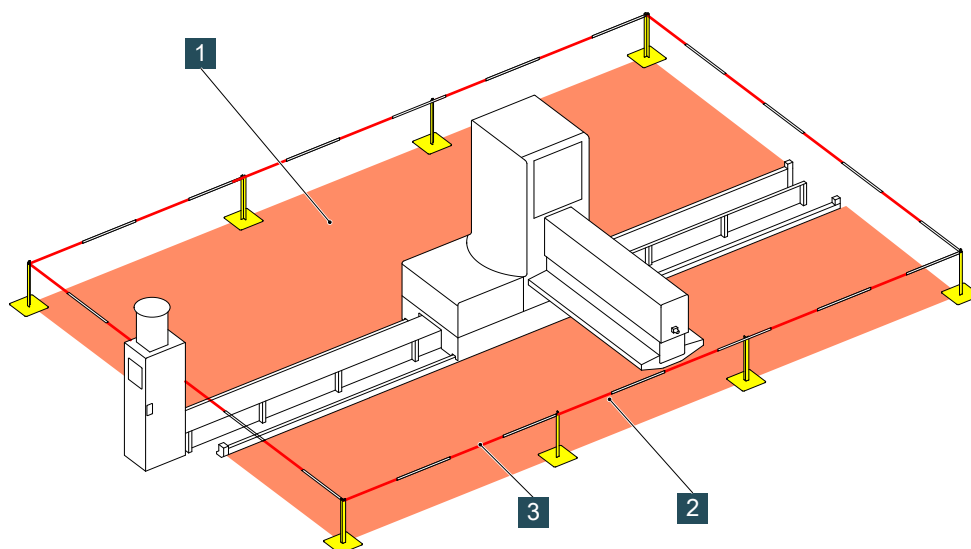


Figure 8: Mechanical danger zones

1 Left danger zone

2 Right danger zone

3 Safety chain

2.9.2.2 Electrical Danger Zones

The illustration that follows shows the electrical danger zones of the machine. These 2 zones contain electrical components that buffer electrical energy.

A risk of injury is possible to occur because of an electric shock if the operator touches the live components.

Only approved personnel are permitted to open the door of the tower **1** and the door of the console **2**.

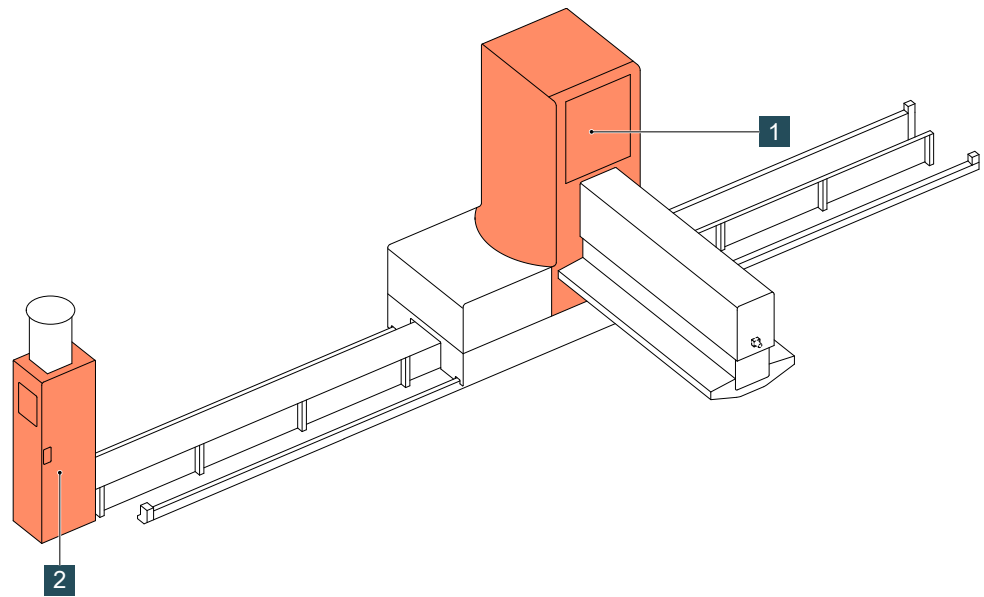


Figure 9: Electrical danger zones

1 Tower

2 Console

2.9.3 Safety Devices at the Doors and Hoods

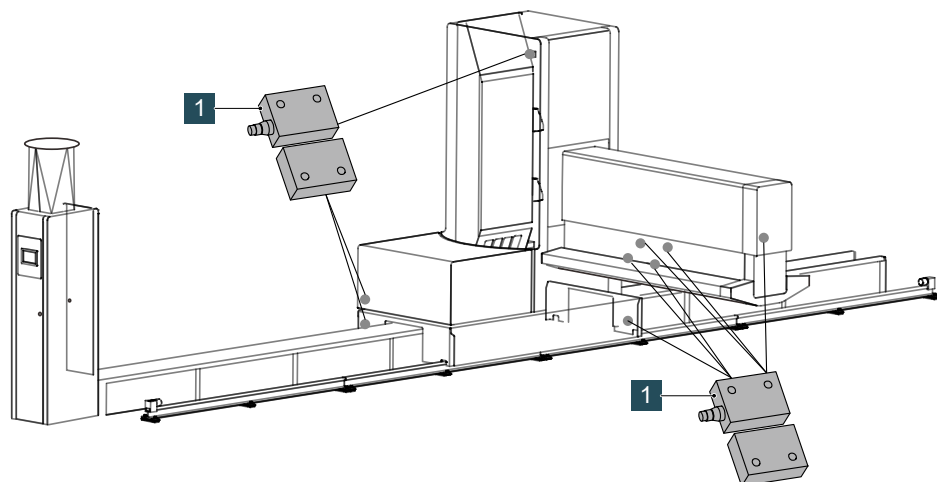


Figure 10: Magnetic safety switches



DANGER

The safety devices are removed or bypassed!

Death or dangerous injuries

- Do NOT remove the installed safety devices.
- Do NOT bypass the installed safety devices.

The drives behind the doors and the safety flaps are stopped when the doors and the safety flaps, which are monitored through the safety switch **1**, are opened.

The function of the safety switches **1** is to be examined regularly. See *Doing the Function Test of the Safety Circuits* ► 174

2.9.4 Safety Devices at the Machine

The machine has the safety devices that follow:

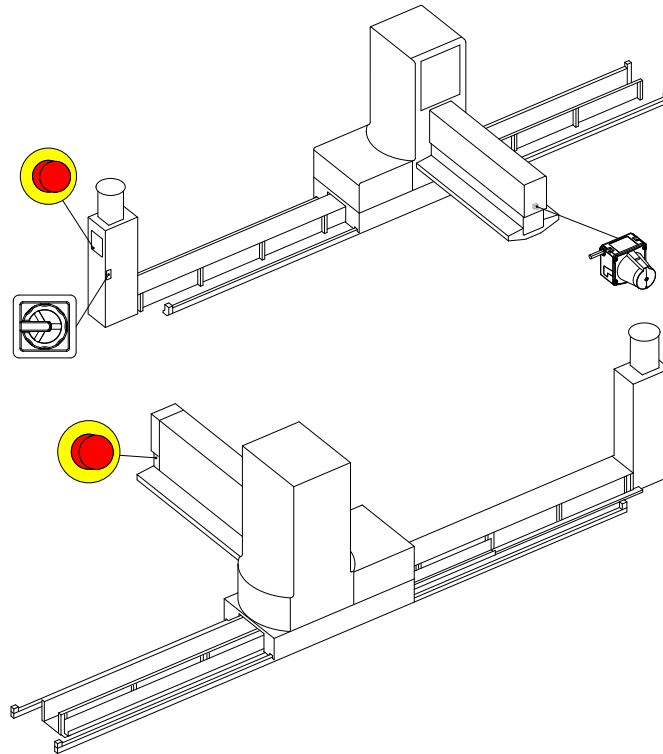
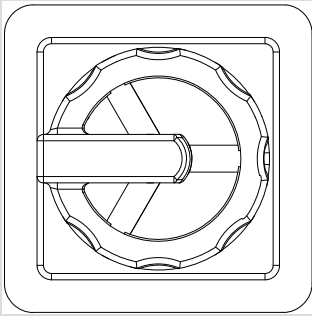


Figure 11: Safety devices

Safety Devices

Icon	Description
	Emergency stop button The emergency stop button is only used if there is an emergency. When the emergency stop button is pushed: – The machine stops immediately. – All the connected peripheral machines of the machine stop immediately. The emergency stop button is possible to be released by turning the button.

Icon	Description
	Main switch The main switch has 2 positions: 0 (disconnect) and I (connect). The main switch has no emergency stop function. The main switch must be set to OFF position and be padlocked before you start these procedures: – Maintenance works – Changeover works

Laser Scanner

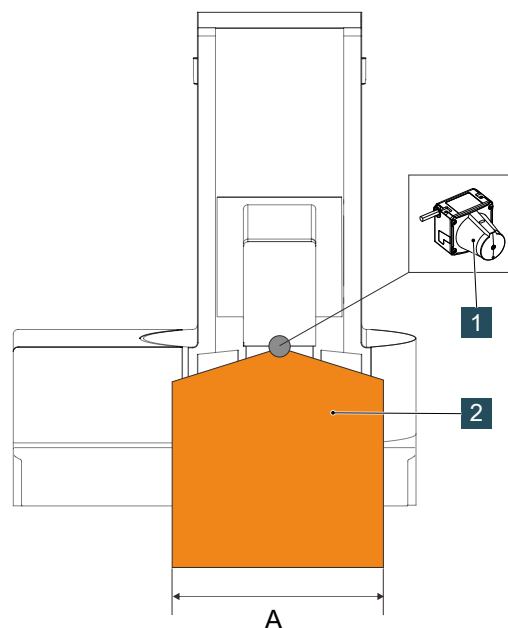


Figure 12: Laser scanner

The laser scanner **1** does a scan in the range **2** to sense person or object. The machine stops immediately if a person or an object goes into the range.

The width A is 2 m.

3 Product Information

This chapter contains the information about:

- The intended use of the machine
- The location of the identification plate
- The primary machine assemblies
- The basic machine functions
- The technical data
- The EC / EU Declaration of Conformity

3.1 Intended Use

The Rieter UNIfloc A 12 does the function of taking off tufts from:

- Bales of cotton
- Bales of man-made fiber
- Bales of blend of cotton and man-made fiber

The bale groups **5** are put in the working areas **4** on the 2 sides of the machine. The machine takes off the bale groups into the tufts to supply the next machines.

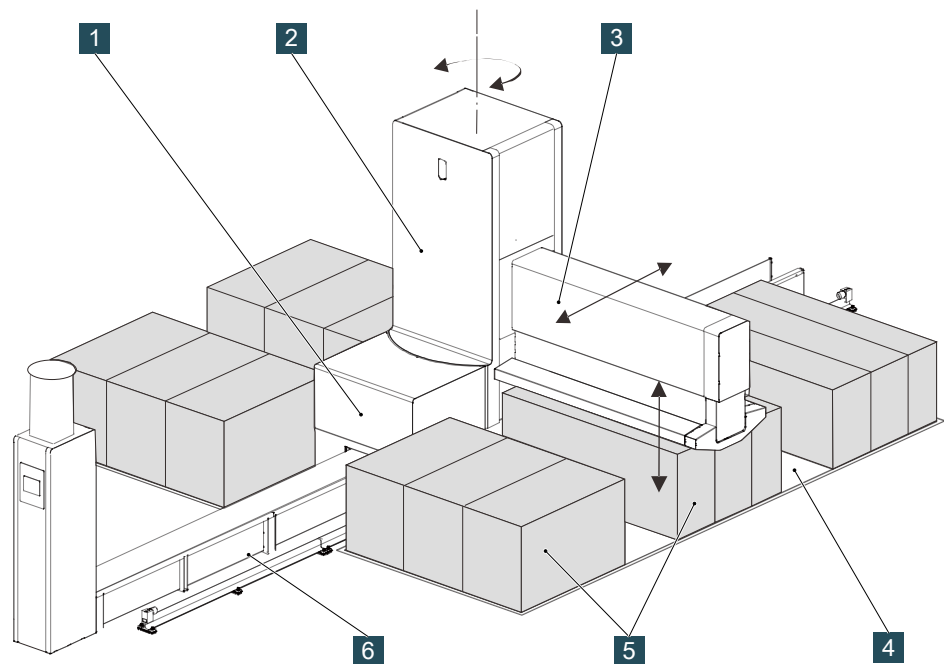


Figure 13: Overview

1 Chassis	2 Tower
3 Take-off unit	4 Working areas
5 Bale groups	6 Flock feeder channel

The personnel that operate the machine must obey the instructions in this operation manual. All operations other than given in this operation manual are **not** permitted.

3.2 Raw Material

This section gives information about the material that is processed by the machine.

3.2.1 Bale Group Configuration

All bales are put in the inner boundary line of the left working area A or the right working area B. On each working area, the maximum number of bale groups or assortments is 3.

Each bale group can be put in 2 positions:

- Lengthwise **1** **3**
- Crosswise **2**

Each bale group has minimum 2 bales.

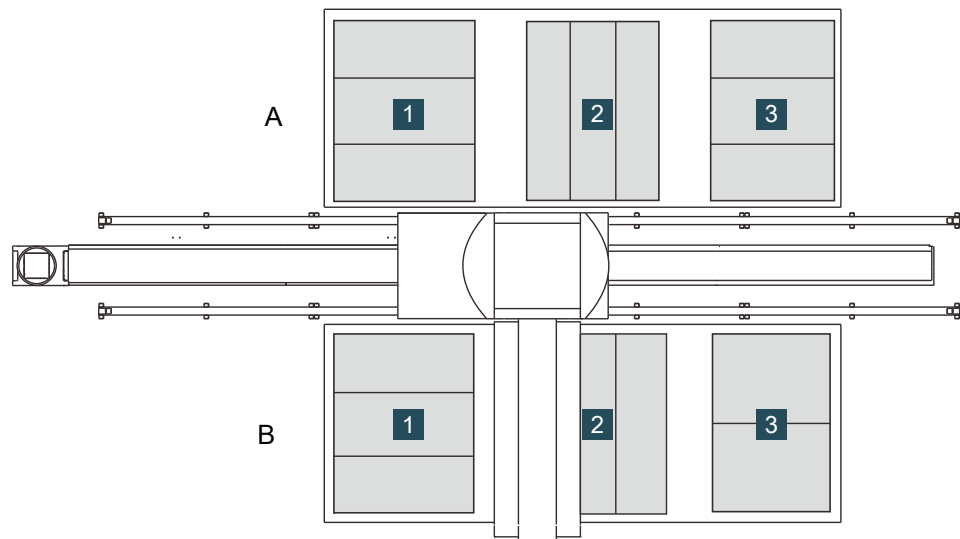


Figure 14: Bale group configuration

- | | |
|-------------------------------|--------------------------------|
| 1 The first bale group | 2 The second bale group |
| 3 The third bale group | |

The bale groups can be put in 2 methods:

- Source **4**
- Height **5**

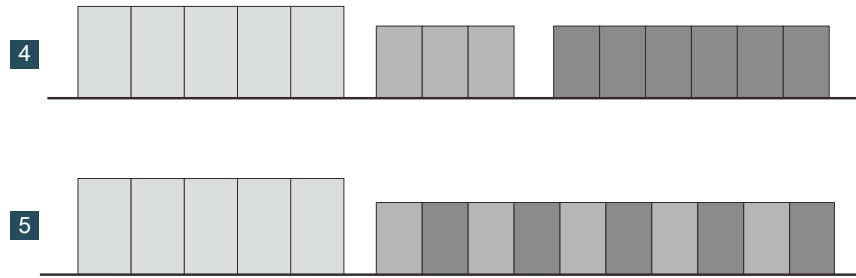


Figure 15: Bale group configuration

The bales of the same source **4** are put in one bale group. The surface of each bale group must be flat before production.

The bales of the same height **5** are put in one bale group. Each bale group can have bales of the same source or different source.

3.2.2 Bale Dimensions

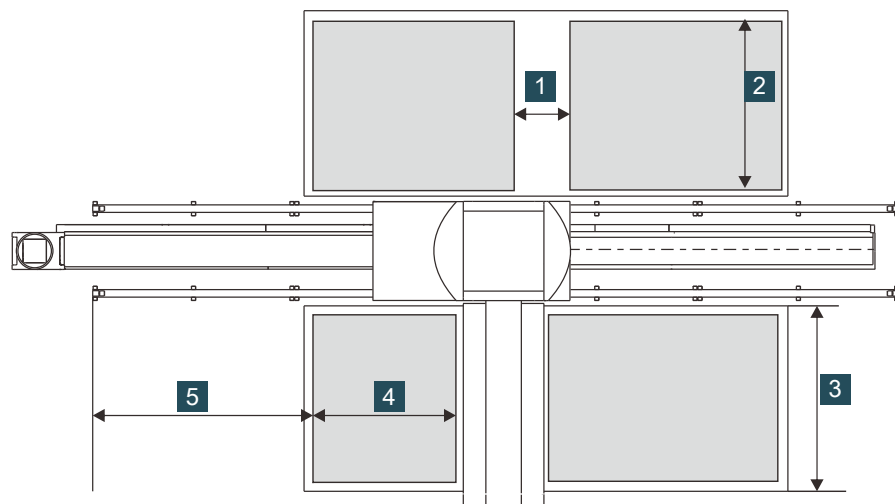


Figure 16: Bale dimensions

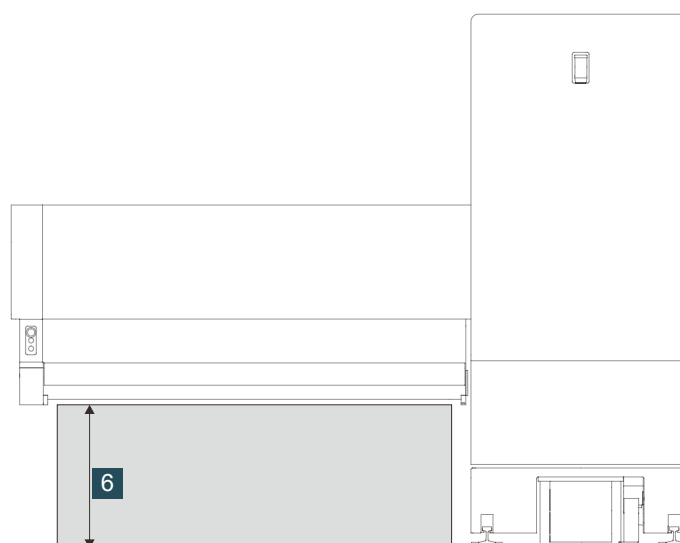


Figure 17: Bale height

	1	The distance between 2 bale groups: Minimum 1 600 mm	4	The length of each bale group: Minimum 3 000 mm
	5	The distance between the rail end and the first bale group: Minimum 2 670 mm	6	The height of each bale group: Maximum 1 700 mm
With 2300 mm take-off unit	2	The width of each bale group: Maximum. 2 200 mm	3	The width of the working area: Maximum 2 200 mm
With 1700 mm take-off unit	2	The width of each bale group: Maximum. 1 610 mm	3	The width of the working area: Maximum 1 610 mm

3.2.3 Available Area for Bale Groups

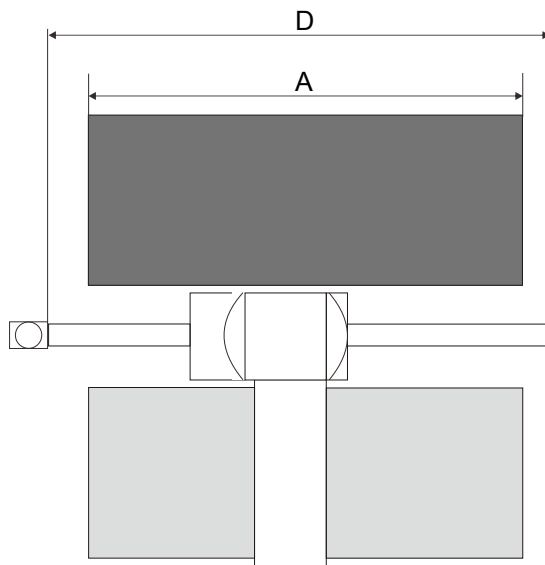


Figure 18: Available area for bale groups

D	The length of the flock feeder channel
A	The length of the working area

Available Area for 1 Bale Group

D (m)	10.0	12.5	15.0	17.5	20.0	22.5
A (m)	5.9	8.4	10.9	13.4	15.9	18.4
D (m)	25.0	27.5	30.0	32.5	35.0	37.5
A (m)	20.9	23.4	25.9	28.4	30.9	33.4
D (m)	40.0	42.5	45.0	47.5	50.0	-
A (m)	35.9	38.4	40.9	43.4	45.9	-

Available Area for 2 Bale Groups

D (m)	10.0	12.5	15.0	17.5	20.0	22.5
A (m)	-	6.8	9.3	11.8	14.3	16.8
D (m)	25.0	27.5	30.0	32.5	35.0	37.5
A (m)	19.3	21.8	24.3	26.8	29.3	31.8
D (m)	40.0	42.5	45.0	47.5	50.0	-
A (m)	34.3	36.8	39.3	41.8	44.3	-

Available Area for 3 Bale Groups

D (m)	10.0	12.5	15.0	17.5	20.0	22.5
A (m)	-	-	-	10.2	12.7	15.2

D (m)	25.0	27.5	30.0	32.5	35.0	37.5
A (m)	17.7	20.2	22.7	25.2	27.7	30.2

D (m)	40.0	42.5	45.0	47.5	50.0	-
A (m)	32.7	35.2	37.7	40.2	42.7	-

3.2.4 Calculating the Bale Quantity

Example A spinning mill has 3 different bale groups. The spinning mill mixes all bale groups in 30%, 20%, and 50%. The spinning mill has a machine with a 40-meter-long flock feeder channel.

The bales have the features that follow:

- Each bale's dimensions and weights are known.
- Each bale group is minimum 3 meters long.
- Each bale group has minimum 2 bales.

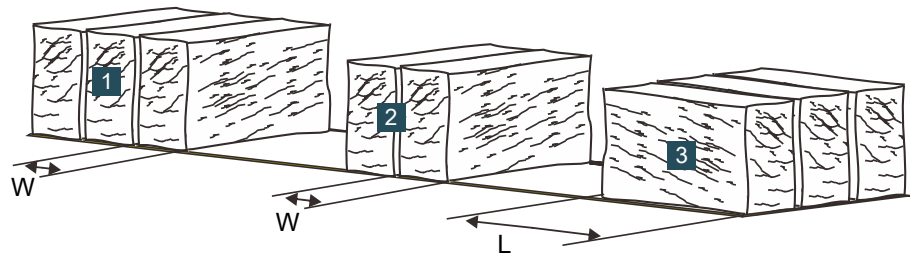


Figure 19: Example of bale quantity calculation

1 First bale group

2 Second bale group

3 Third bale group

Bale grouping

Bale Group	L (m)	W (m)	G (kg)	P (%)	C/Q
1	1.3	0.6	190	30	Q
2	1.6	0.7	230	20	Q
3	1.7	0.65	180	50	C

L	Bale length	W	Bale width
G	Bale weight	P	Production proportion
C	Crosswise configuration	Q	Lengthwise configuration

How to Calculate the Bale Quantity**Step 1: Refer to “Available Area for Bale Groups”:**

- The length of the flock feeder channel is 40 m.
- The number of the different bale groups is 3.

So, the length of the working area is 32.7 m.

Step 2: Set the average value of the width of each bale to be X.**Step 3: Calculate the total theoretical number of bales as follows:**

Bale Group 1 (3 Crosswise Bales)	$X1 = 0.6 \text{ m}$
Bale Group 2 (3 Crosswise Bales)	$X2 = 0.7 \text{ m}$
Bale Group 3 (3 Lengthwise Bales)	$X3 = 1.7/3 \text{ m}$
The Average Value X	$X = (X1 + X2 + X3)/3 = 0.62 \text{ m}$
The Total Theoretical Number of Bales	$32.7/0.62 = 53 \text{ bales}$

Step 4: Calculate the theoretical number of bales for each bale group as follows:

Bale Group 1	$53 \times P1 = 53 \times 30 \% = 15.9 \text{ bales}$
Bale Group 2	$53 \times P2 = 53 \times 20 \% = 10.6 \text{ bales}$
Bale Group 3	$53 \times P3 = 53 \times 50 \% = 26.5 \text{ bales}$

Step 5: Calculate the theoretical weight of bales for each bale group as follows:

Bale Group 1	$15.9 \times G1 = 15.9 \times 190 = 3\,021 \text{ kg}$
Bale Group 2	$10.6 \times G2 = 10.6 \times 230 = 2\,438 \text{ kg}$
Bale Group 3	$26.5 \times G3 = 26.5 \times 180 = 4\,770 \text{ kg}$
The Total Theoretical Weight	$3\,021 + 2\,438 + 4\,770 = 10\,229 \text{ kg}$

Step 6: Calculate the theoretical proportion of each bale group as follows:

Bale Group 1	$3\,021/10\,229 \times 100 \% = 29.5 \%$
Bale Group 2	$2\,438/10\,229 \times 100 \% = 23.8 \%$
Bale Group 3	$4\,770/10\,229 \times 100 \% = 46.6 \%$

Step 7: Calculate the actual bale quantity for each bale group (refer to step 4 and step 6) as follows:

Bale Group 1	Round up to 16 bales
Bale Group 2	Round down to 10 bales
Bale Group 3	Round up to 27 bales

3.2.5 Raw Material Production

Raw materials

Type	Requirement
Cotton	All Sources
Man-made fibers	Maximum 65 mm
Recycling material	All Sources
Comber waste	All

Cotton

2300 mm Take-off Unit			
Length of Flock Feeder Channel (m)	1 Assortment (kg/h)	2 Assortments (kg/h)	3 Assortments (kg/h)
10.0	1 643	-	-
12.5	1 786	-	-
15.0	1 821	-	-
17.5	1 857	-	-
20.0	1 885	1 457	1 129
22.5	1 914	1 514	1 200
25.0	1 942	1 557	1 286
27.5	1 971	1 614	1 357
30.0	2 000	1 671	1 443
32.5 – 50.0	2 000	1 714	1 443

1700 mm Take-off Unit			
Length of Flock Feeder Channel (m)	1 Assortment (kg/h)	2 Assortments (kg/h)	3 Assortments (kg/h)
10.0	1 390	-	-
12.5	1 510	-	-
15.0	1 560	-	-
17.5	1 580	1 190	-
20.0	1 600	1 230	780
22.5	1 630	1 270	830
25.0	1 650	1 320	890
27.5	1 670	1 370	940
30.0 – 50.0	1 700	1 400	1 000

Note: The minimum number of bales is 18.

Man-made fibers

2300 mm Take-off Unit			
Length of Flock Feeder Channel (m)	1 Assortment (kg/h)	2 Assortments (kg/h)	3 Assortments (kg/h)
10.0	1 660	-	-
12.5	1 740	-	-
15.0	1 820	1 400	-
17.5	1 900	1 460	1 060
20.0	1 920	1 520	1 140
22.5	1 960	1 680	1 220
25.0	1 980	1 720	1 300
27.5	2 000	1 720	1 360
30.0 - 50.0	2 000	1 720	1 440

1700 mm Take-off Unit			
Length of Flock Feeder Channel (m)	1 Assortment (kg/h)	2 Assortments (kg/h)	3 Assortments (kg/h)
10.0	1 410	-	-
12.5	1 480	-	-
15.0	1 550	1 130	-
17.5	1 580	1 190	740
20.0	1 620	1 230	790
22.5	1 650	1 290	850
25.0	1 670	1 320	900
27.5	1 680	1 370	950
30.0 – 50.0	1 700	1 400	1 000

Note: The minimum number of bales is 12.

3.2.6 Scanning Adjustment

Raw Materials	Production Rate	Threshold Value of Moving-Down-Pressure (kg)	Threshold Value of Moving-Up-Pressure (kg)	Chassis Movement Speed (m/min)	Turn Speed of Take-off Roller (rpm)
Cotton	Low	20	25	10 – 14	1 200 – 1 500

Raw Materials	Production Rate	Threshold Value of Moving-Down-Pressure (kg)	Threshold Value of Moving-Up-Pressure (kg)	Chassis Movement Speed (m/min)	Turn Speed of Take-off Roller (rpm)
	Middle	25	30	10 – 14	1 400 – 1 800
	High	30 – 40	35 – 45	14 – 18	1 600 – 2 000
	Low	20	25	10 – 14	1 200 – 1 500
Viscose	Middle	25	30	10 – 14	1 400 – 1 800
	High	30 – 40	35 – 45	14 – 18	1 600 – 2 000
	Low	20	25	10 – 14	1 200 – 1 500
Polyester	Middle	25	30	10 – 14	1 400 – 1 800
	High	30 – 40	35 – 45	12 – 16	1 400 – 1 800
	Low	20	25	10 – 14	1 200 – 1 500

3.2.7 Take-off Adjustment

Raw Materials	Production Rate	Take-off Depth (mm)	Take-off Roller Penetration Factor (mm)	Chassis Movement Speed	Turn Speed of Take-off Roller (rpm)
Cotton	Low	2 – 3	2 – 3	12 – 16	1 400 – 1 700
	Middle	3 – 4	3 – 4	12 – 16	1 600 – 2 200
	High	4 – 6	4 – 6	16 – 22	1 800 – 2 200
Viscose	Low	2 – 3	2 – 3	12 – 16	1 400 – 1 700
	Middle	3 – 4	3 – 4	12 – 16	1 600 – 2 000
	High	4 – 6	4 – 6	16 – 22	1 800 – 2 200

Raw Materials	Production Rate	Take-off Depth (mm)	Take-off Roller Penetration Factor (mm)	Chassis Movement Speed	Turn Speed of Take-off Roller (rpm)
Polyester	Low	1 – 2	0 – 2	12 – 16	1 400 – 1 700
	Middle	1.5 – 3.0	1 – 3	12 – 16	1 600 – 2 000
	High	2 – 5	1.5 – 5.0	16 – 22	1 800 – 2 200

3.2.8 Recommendation

For better production, 2 adjustments are recommended as follow:

- For hard bales, the penetration factor of the take-off roller can be slightly more than the take-off depth.
- For polyester, the production mode 1 or the production mode 2 is recommended.

3.3 Function Description

The chapters that follow contain the information about the function of the machine and the primary components.

3.3.1 Procedure Information

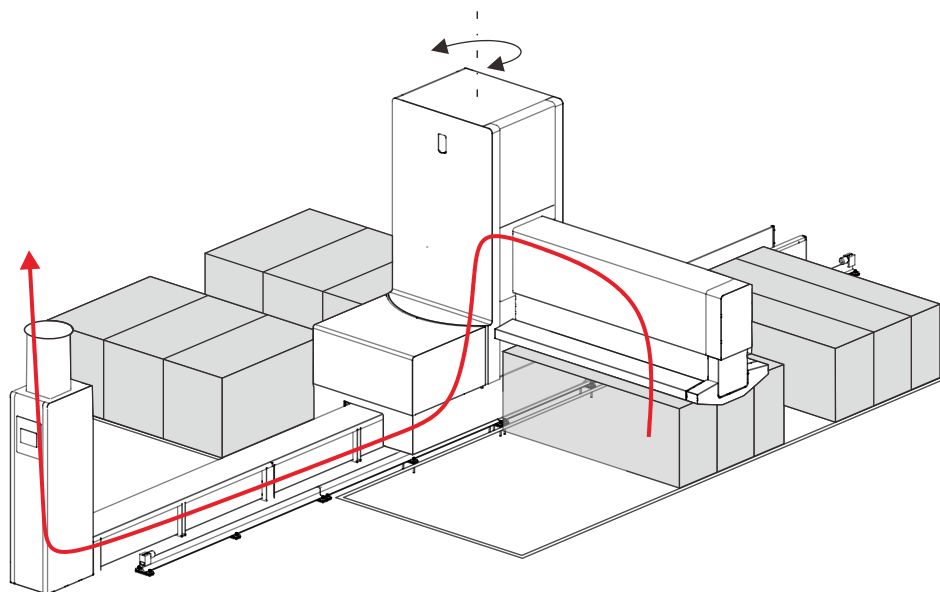


Figure 20: Procedure Information

Description The tufts are pneumatically supplied to the next machines in the movement direction shown above.

The take-off unit removes the raw material and turns the material into tufts. The tufts then go through the tower hose into the flock feeder channel. At last, the tufts come to the diffuser and go to the next machines.

3.3.2 Take-off Unit

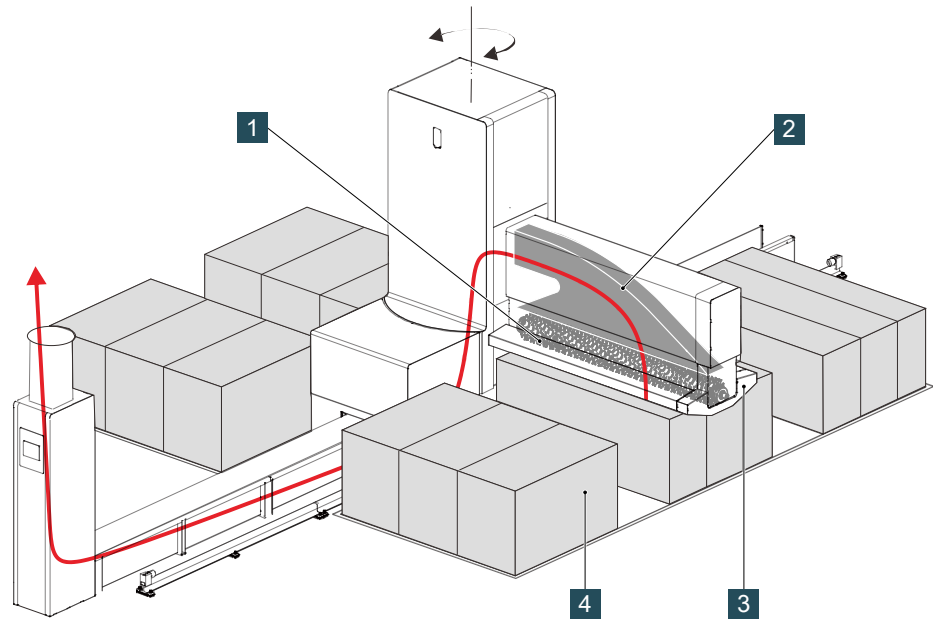


Figure 21: Take-off Unit

1	Take-off roller	2	Transition channel
3	Floor grid	4	Bale groups

Description The take-off unit has parts as follow:

- The take-off roller 1
- The transition channel 2
- The floor grid 3

The take-off unit takes off the bale groups 4 into tufts. The take-off unit can move up and down.

Take-off Roller

The wobble disks on the take-off roller 1 takes off the bale groups 4 into tufts. The take-off roller can turn clockwise or counterclockwise.

Transition Channel

The tufts go through the transition channel 2 into the tower.

Floor Grid

The floor grid **3** holds the take-off roller **1** to make tufts. The floor grid also pushes down the bale groups **4** in production.

3.3.3 Tower

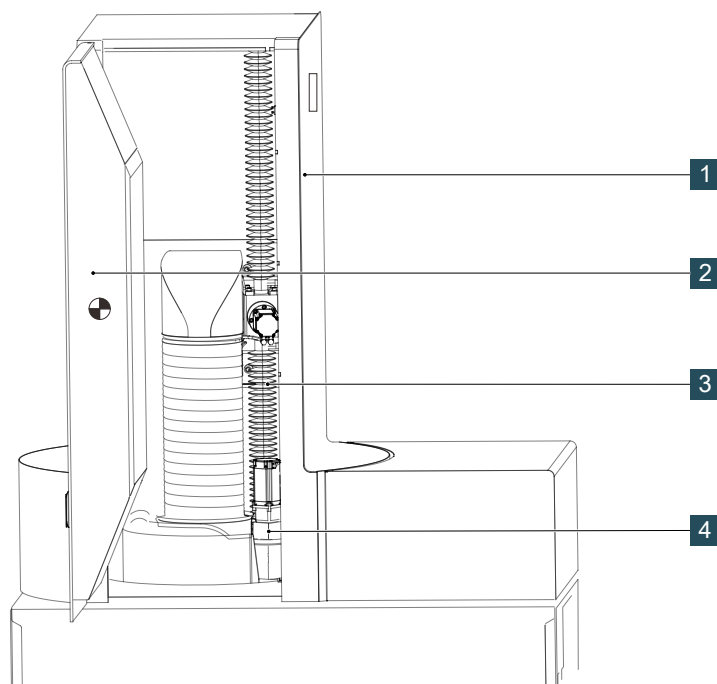


Figure 22: Tower

1 Tower monocoque	2 Tower door
3 Spindle	4 Tower drive

Description The tower has parts as follows:

- The tower monocoque **1**
- The tower door **2**
- The spindle **3**
- The tower drive **4**

Tower Door

The tower door **2** has an electrical cabinet behind the inner door. The tower door also balances the machine as a counterweight.

Spindle

The spindle **3** is a suspension device for the take-off unit. The take-off unit moves up and down along the spindle.

Tower Drive

The tower drive **4** turns the tower with the take-off unit by 180°.

3.3.4 Chassis

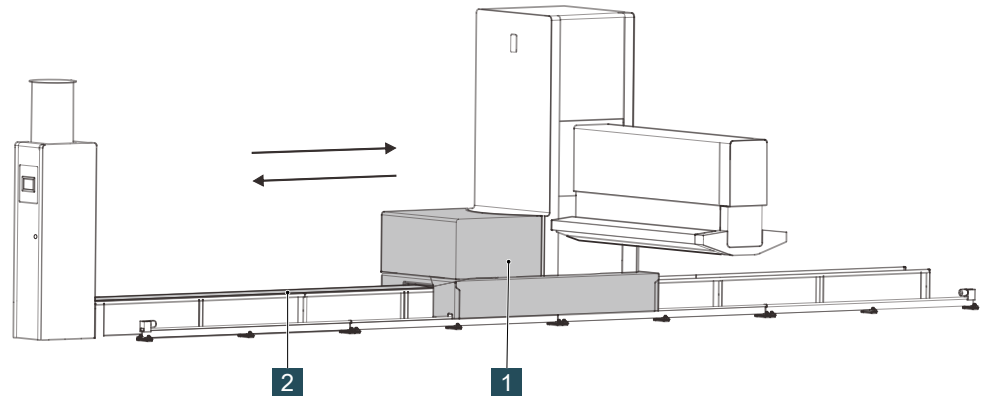


Figure 23: Chassis

1 Chassis base

2 Cover tape

Description

The chassis has parts as follow:

- The chassis base **1**
- The cover tape **2**

The chassis moves the tower and the take-off unit along the rails.

Chassis Base

The chassis base **1** has 2 drives that move the chassis along the rails.

Cover Tape

The cover tape **2** is on the channel. The cover tape is wound by a winder when the chassis moves.

3.3.5 Flock Feeder Channel

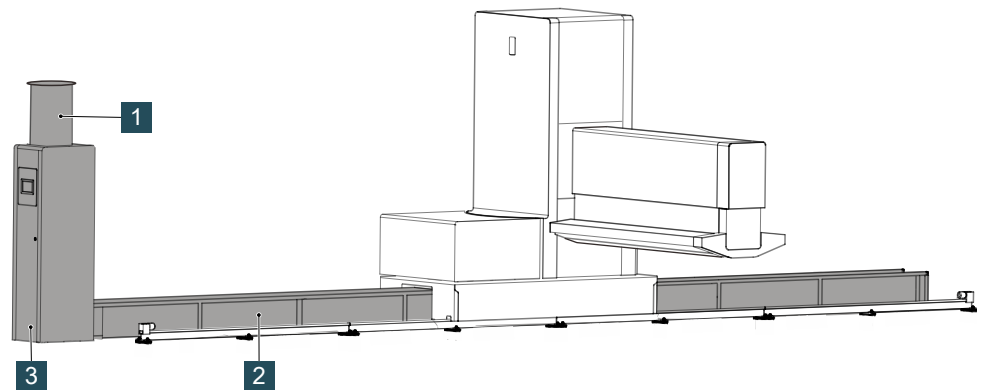


Figure 24: Flock Feeder Channel

1	Diffuser	2	Channel
3	Control console		

Description The flock feeder channel has parts as follow:

- The diffuser 1
- The channel 2
- The control console 3

The tufts go through the flock feeder channel to the next machines.

Diffuser

The diffuser 1 is a transition piece that connects the machine with the next tufts-supply pipes.

Channel

The channel 2 has the cover tape on it to make a closed space for the tufts to go through.

Control Console

The front door of the control console 3 has control elements in it.

3.4 Technical Data

The information about the technical data is for a standard machine.

3.4.1 Dimensions

All dimensions of this machine are given in millimeters.

View from above

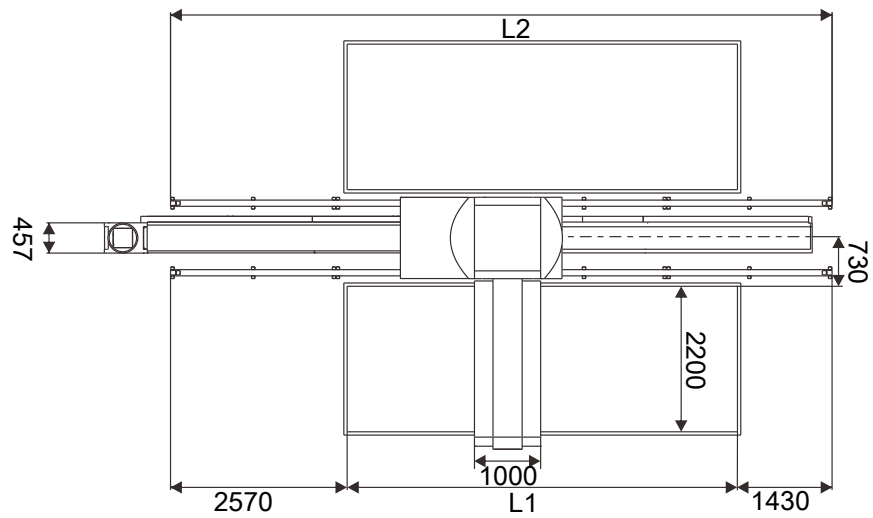


Figure 25: Top view (2300 mm take-off unit)

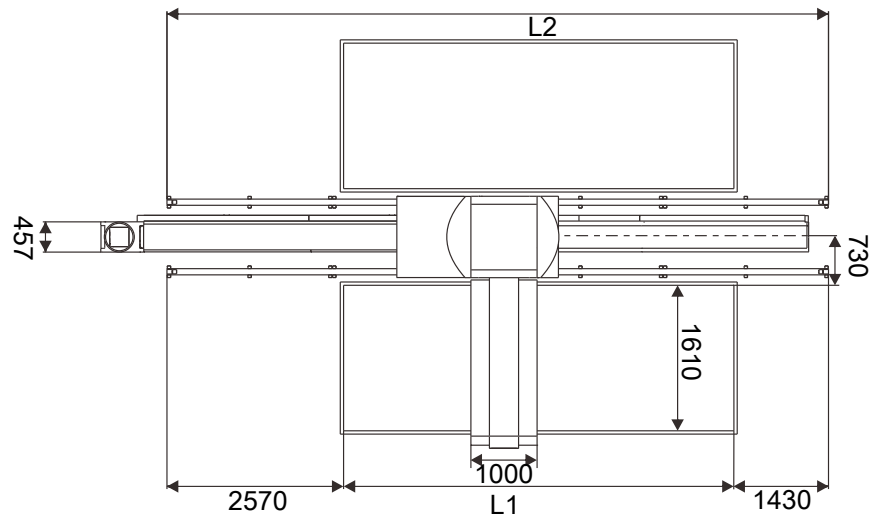


Figure 26: Top view (1700 mm take-off unit)

L1	6 000 – 46 000 mm
L2	10 000 – 50 000 mm

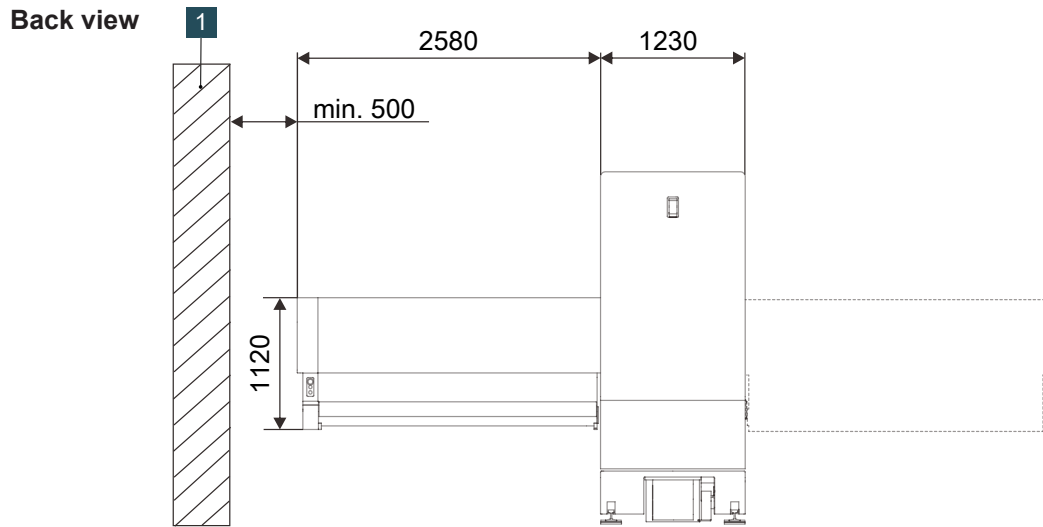


Figure 27: Back view (2300 mm take-off unit)

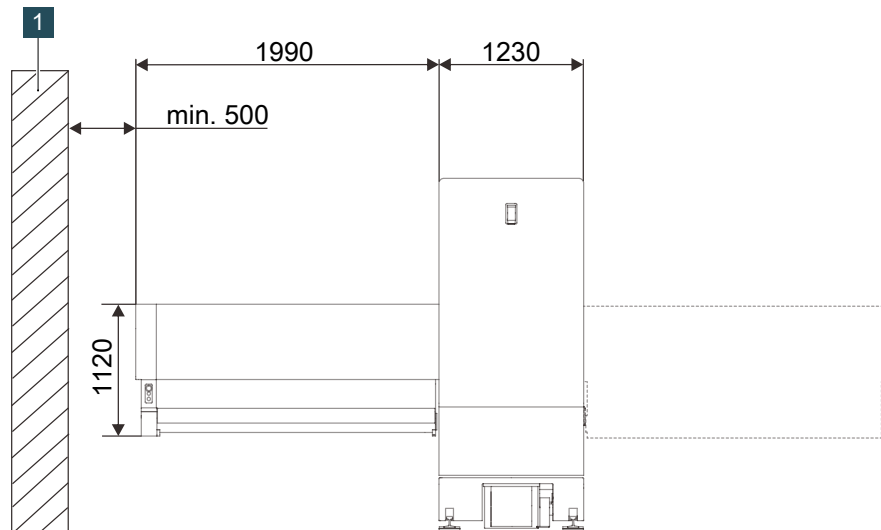


Figure 28: Back view (1700 mm take-off unit)

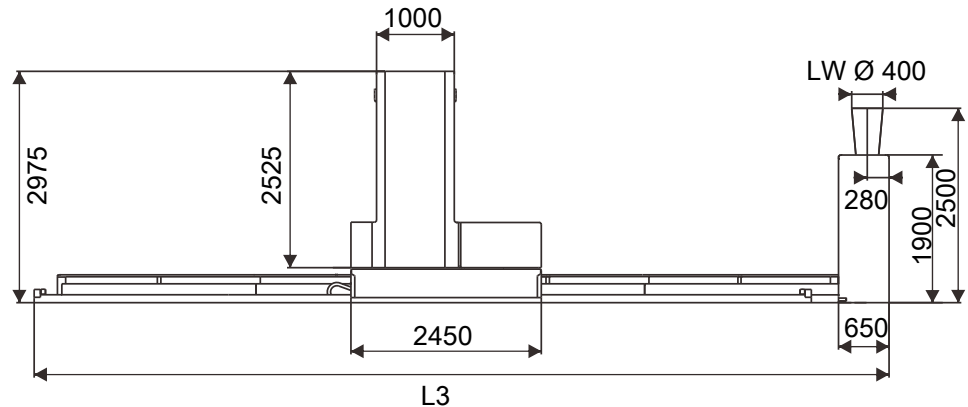
1	Wall
---	------

The minimal distance between the take-off unit end/head and the next take-off unit end/head (in case of 2 parallel A12 lines) must be also 500 mm.

In order to allow a reduction of the minimal distance of 500 mm (between the end/head of take-off unit and the wall or the next end/head of take-off unit), the procedures that follow must be taken and approved:

- Propose plan on how to introduce extra safety measures (for example, guards) to prevent access to the danger area while operating the A12.
- Perform safety risk assessment with the extra safety measures and make sure that the requirements are met in line with the machine directive 2006/42/EG (annex I).

- Check with local authorities and the applicable safety laws & regulations.

Side view

Figure 29: Side view

L3	11 000 – 51 000 mm
LW	Inner dimension (mm)

3.4.2 Production Rate

Production Rate	Yield of 2300 mm Take-off Unit	Yield of 1700 mm Take-off Unit
Low	< 800 kg/h	< 500 kg/h
Middle	800 – 1 200 kg/h	500 – 850 kg/h
High	1 200 – 2 400 kg/h	850 – 1 700 kg/h

3.4.3 Noise Emission

The standard of noise emission is ISO 9902. The distance of the noise emission measurement is 1 m.

The formula of noise emission is $L_m + K$:

- L_m = Average value
- K = 3 dB (Safety margin)

Measurement Condition		L_{Wad}	L_{pAd}
Take-off roller in production without raw materials	2 000 rpm	99 + 3 dB	79 + 3 dB
	2 200 rpm	100 + 3 dB	80 + 3 dB

L_{Wad} : A-weighted sound power level (reference power: 1 pW)

L_{pAd} : A-weighted sound pressure level at the operator position (reference pressure: 20 μ Pa)

3.4.4 Weights

Assembly weight

Assembly	Weight (kg) for Machine with 2300 mm Take-off Unit	Weight (kg) for Machine with 1700 mm Take-off Unit
Take-off roller	75	55
Control console	200	200
Take-off unit	624	464
Chassis	1 174	1 174
Tower	1 858	1 858

Machine weight

Rail Length (mm)	Weight (kg) for Machine with 2300 mm Take-off Unit	Weight (kg) for Machine with 1700 mm Take-off Unit
10 000	4 050	3890
12 500	4 270	4110
15 000	4 490	4330
17 500	4 710	4550
20 000	4 930	4770
22 500	5 150	4990
25 000	5 370	5210
27 500	5 590	5430
30 000	5 810	5650
32 500	6 030	5870
35 000	6 250	6090
37 500	6 470	6310
40 000	6 690	6530
42 500	6 910	6750
45 000	7 130	6970
47 500	7 350	7190
50 000	7 570	7410

3.4.5 Electrical Data

Machine requirements

Type of Power / Fuse Protection	Value
Main voltage	400 VAC
Main current	23 A
Main power	16 kW
Fuse protection	36 A

Motors	Motor	Power (kW)
	Tower motor	1.451
	Winder motor	1.451
	Chassis motor	1.451
	Lift drive motor for take-off unit	1.613
	Take-off roller motor	9.820

3.5 Identification Plate

The CE identification plate is installed behind the front door of the control console.

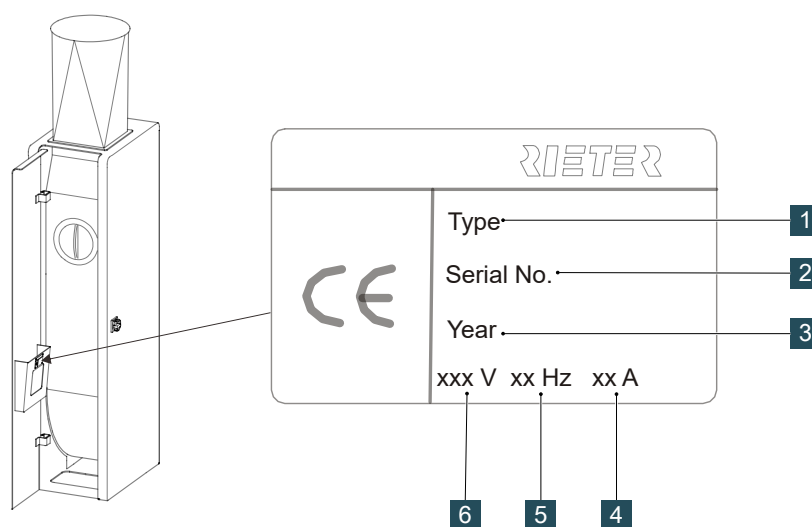


Figure 30: Identification plate

1	Machine type	2	Serial number
3	Year of production	4	Current
5	Frequency	6	Voltage

3.6 Doors and Hoods

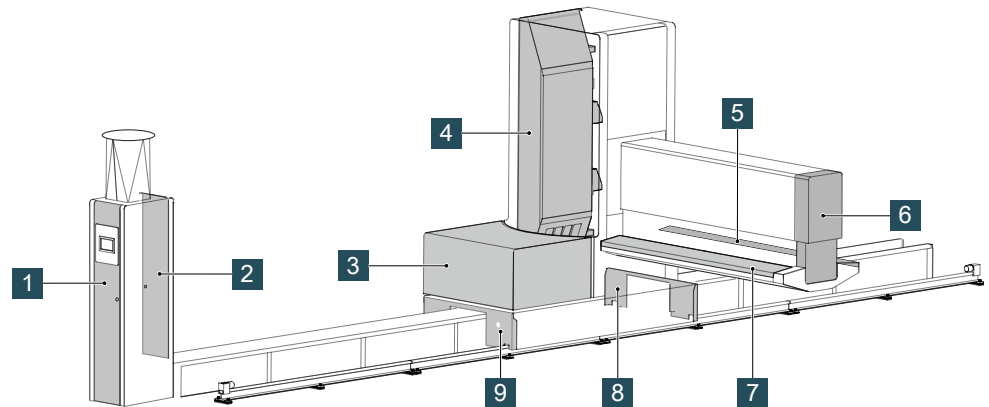


Figure 31: Doors and hoods

Doors with Locks

The machine A 12 has doors with locks and safety flaps with locks. The twist locks prevent the doors and the safety flaps from accidental openings. Only a special key can open or lock the door.

1	Twist lock in the front door of the control console	2	Twist lock in the rear door of the control console
4	Twist lock in the tower door	8	Twist lock in the rear safety flap of the chassis
9	Twist lock in the front safety flap of the chassis		

Doors Secured with Safety Switches

This machine also has doors and safety flaps that are monitored by the magnetic safety switches.

3	Winder cover hood	5	Right safety flap of the take-off unit
6	Front door of the take-off unit	7	Left safety flap of the take-off unit

3.7 Operator Working Area

The information that follows is the overview of the working area for the operator.

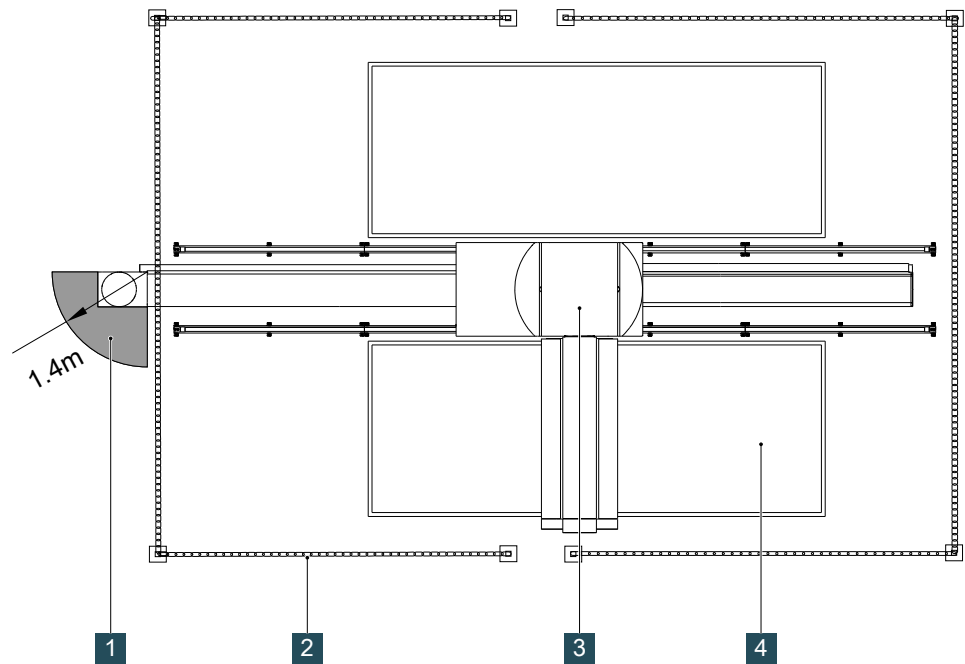


Figure 32: Overview of the working area

The illustration is viewed from above.

- | | |
|--------------------------------|-------------------------------|
| 1 Operator working area | 2 Safety chain |
| 3 A12 machine | 4 Machine working area |

The front of the console is the operator working area.

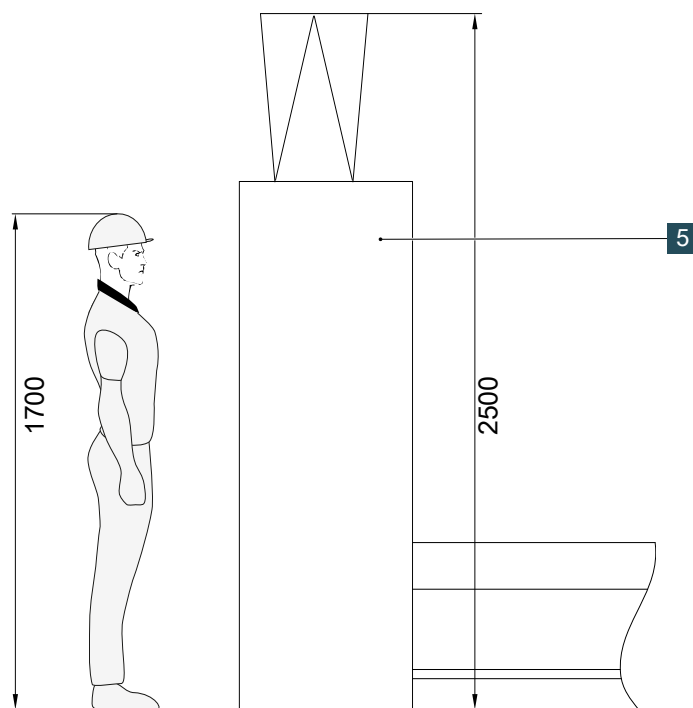


Figure 33: Operator working area

All dimensions above are in millimeters.

5 Console

3.8 Central System

The central system has:

- The control system
- The remote I/O system
- The movement control system
- The panel

3.8.1 Control System

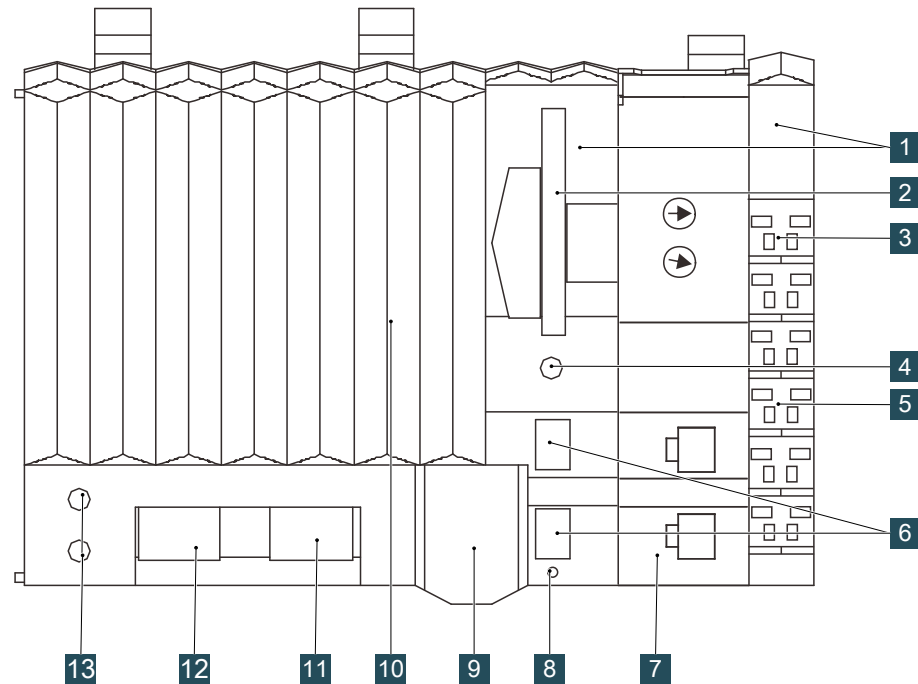


Figure 34: Control System Box

1 LED status indicators	2 Compact flash card
3 IF1 – RS232 interface	4 Operation mode switch
5 CPU supply	6 USB
7 Communication module	8 Reset button
9 Battery	10 CPU module
11 IF3 - POWERLINK	12 IF2 – Ethernet
13 Station address of Ethernet switches	

The control system is in the control console. The statuses of the control-system are shown by the LED status indicators **1**.

3.8.1.1 Operation Mode Switch

The operation mode switch sets the operation mode of the machine.

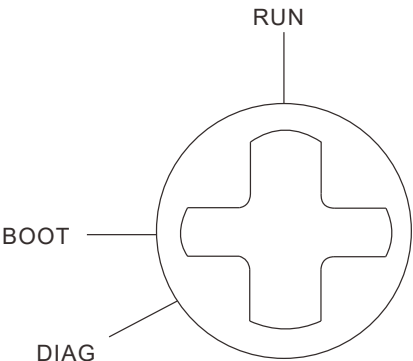


Figure 35: Mode Switch

Switch Position	Description
BOOT	The default automation-runtime-system is started.
RUN	Run mode
DIAG	The CPU is started in diagnostic mode. Program sections in user RAM and user FlashPROM are not initialized. After the diagnostic mode, you must do a cold restart.

3.8.1.2 Hardware Reset (Cold Restart)

A hardware reset (cold restart) makes the control system go back to its initial condition.

You can push the reset button with a small sharp object.

After you push the reset button:

- All programs are stopped.
- All outputs are set to 0.

3.8.1.3 Station Address of the Control System

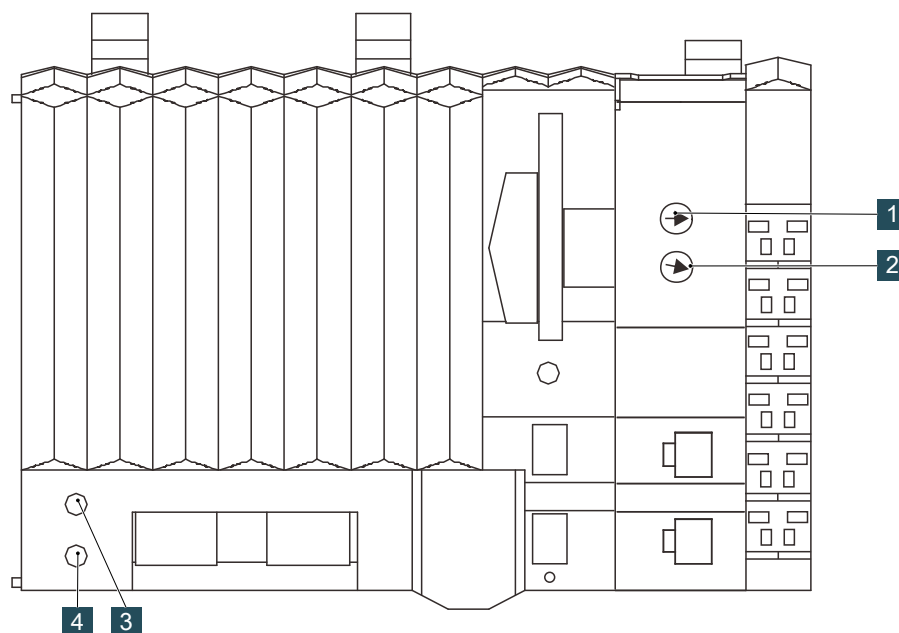


Figure 36: Station Address Switch

Communication module	Switch	Station Address
	1	0
	2	0
CPU module	Switch	Station Address
	3	0
	4	0

3.8.2 Remote I/O System

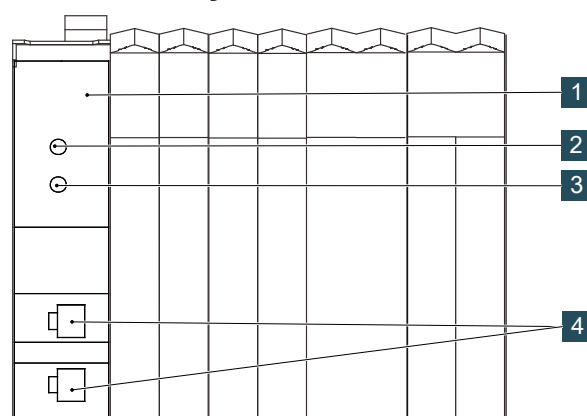


Figure 37: Remote I/O System

1	LED status indicator	2	Station address switch (up)
---	----------------------	---	-----------------------------

- 3 Station address switch (down)
- 4 POWERLINK connection

Function The remote I/O system is in the electrical cabinet of the tower. The remote I/O system transmits data to the control system through the POWERLINK bus. The status of the remote I/O system is shown by the LED status indicator 1.

Station Address	Switch	Station Address
	2	0
	3	1

3.8.3 Movement Control System

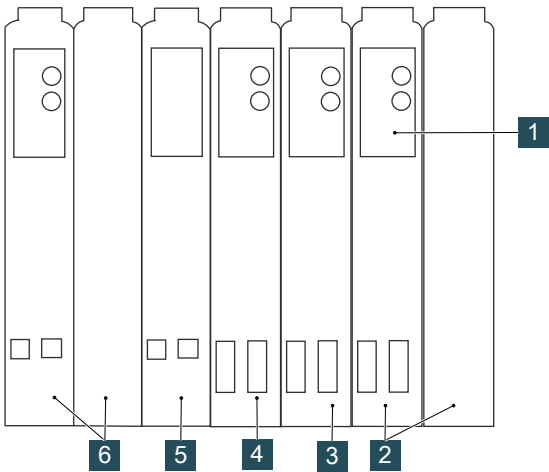


Figure 38: Control System

- 1 LED status indicators
- 2 Drive modules (U7) of the lift drive of the take-off unit and the take-off roller
- 3 Drive module (U5) of the winder and the tower
- 4 Drive module (U3) of the chassis
- 5 Auxiliary supply module (U2)
- 6 Power supply modules (U1)

The movement control system is in the electrical cabinet of the tower. The movement control system transmits signals from the control system to the related drives to make movement. The statuses of the movement control system are shown by the LED status indicators 1.

3.8.3.1 Station Address of the Movement Control System

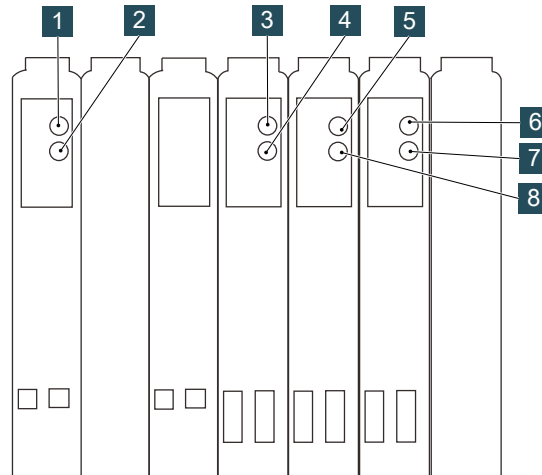


Figure 39: Station Address

Module U1	Switch	Station Address
	1	0
	2	2
Module U3	Switch	Station Address
	3	0
	4	3
Module U5	Switch	Station Address
	5	0
	8	4
Module U7	Switch	Station Address
	6	0
	7	5

3.8.4 POWERLINK Bus

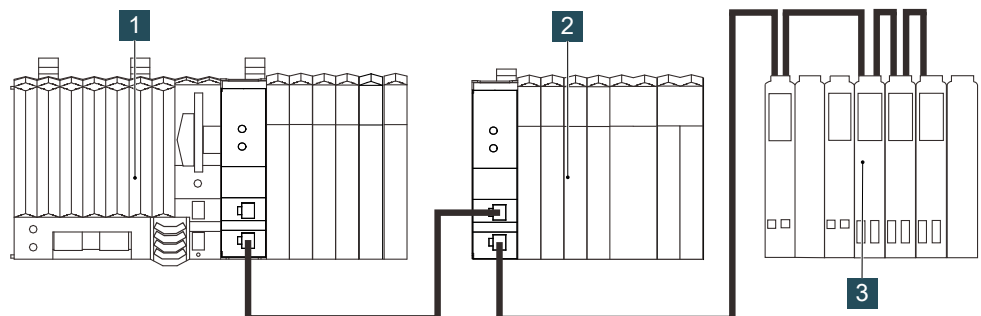


Figure 40: POWERLINK Bus Overview

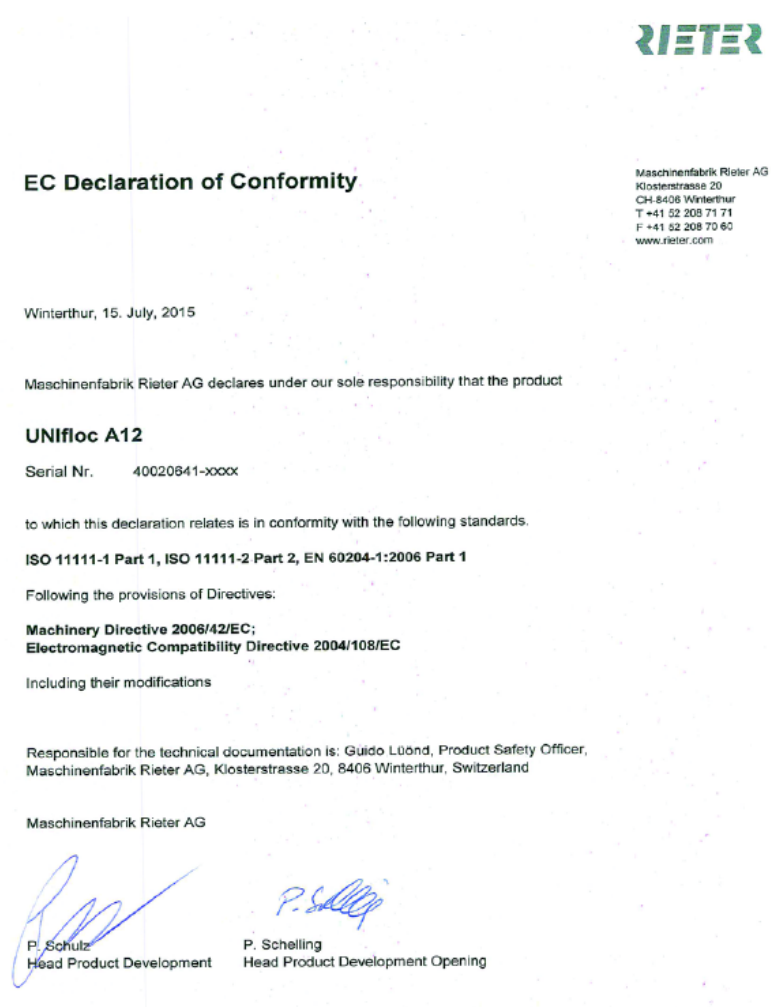
.....

1	Control system	2	Remote I/O system
3	Movement control system		

The POWERLINK bus transmits data in the control system 1, the remote I/O system 2, and the movement control system 3.

.....

3.9 EC Declaration of Conformity



RIETER

EC Declaration of Conformity

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Winterthur, 15. July, 2015

Maschinenfabrik Rieter AG declares under our sole responsibility that the product

UNIfloc A12

Serial Nr. 40020841-xxxx

to which this declaration relates is in conformity with the following standards.

ISO 11111-1 Part 1, ISO 11111-2 Part 2, EN 60204-1:2006 Part 1

Following the provisions of Directives:

**Machinery Directive 2006/42/EC;
Electromagnetic Compatibility Directive 2004/108/EC**

Including their modifications

Responsible for the technical documentation is: Guido Lüönd, Product Safety Officer,
Maschinenfabrik Rieter AG, Klosterstrasse 20, 8406 Winterthur, Switzerland

Maschinenfabrik Rieter AG


P. Schulz
Head Product Development


P. Schelling
Head Product Development Opening

Figure 41: EC certificate

4 Packaging and Transportation

This chapter contains the information about:

- The general packaging instructions
- The packaging
- The packaging accessories
- The instructions on the safe machine transport

4.1 Packaging and Transportation Personnel

Only Rieter approved personnel are permitted to:

- Transport the machine
- Remove or install the packing material
- Remove the machine from the material boxes or the transportation pallets
- Install the machine in the material boxes or on the transportation pallets

4.2 Liability for Unloading and Transportation

The customer is generally liable for the transportation to the installation site and the temporary storage. The customer is generally liable to unload the machine components at the installation site.

The installation personnel does not transport machine components to the installation site or unload components at the installation site. In the case that guidance from the installation personnel is necessary, the installation personnel cannot be held responsible for any damage that may arise.

4.3 Unpacking

1. Open the material boxes. Remove the packing material.
2. Examine if the machine or parts of the machine got damage during the transport.
3. If machine damage occurred, the personnel must tell the customer to give a report to the insurance office.
4. Use the pack list to examine the contents of the material boxes for missing parts.
5. If the material boxes do not contain all parts, the personnel must tell the customer to give a report to Rieter.
6. Remove the transport locks from the material boxes and the transportation pallets.

4.3.1 Dimension and Weights

**NOTICE****Missing transport locks!**

Property damage because of uncontrolled movement of machine parts

► Install the transport locks each time before transporting the machine.

The A 12 is put into 6 different wooden boxes that follow:

- Take-off unit
- Chassis
- Tower
- Control console
- Flock feeder channel_1
- Flock feeder channel_2

For the 3 boxes that follow, the dimensions and weights stay the same when the length of the flock feeder channel is different.

- Take-off unit
- Chassis
- Tower

For the 3 boxes that follow, the dimensions and weights are different when the length of the flock feeder channel is different. The table below gives the range from length 25 m to 50 m.

- Control console
- Flock feeder channel_1
- Flock feeder channel_2

Description	Dimension ¹ (cm)	Gross Weight (kg)
Take-off unit (2300 mm)	270 × 116 × 142	780
Take-off unit (1700 mm)	220 × 116 × 142	580
Chassis	265 × 116 × 124	1 280
Tower	297 × 186 × 167	2 030
Control console	206 × 206 × 91	688 – 724
Flock feeder channel_1	270 × 71 × (80 – 116)	1 351 – 2 500
Flock feeder channel_2	280 × 115 × (138 – 215)	1 000 – 2 050

Table 1: Dimensions and Weights of Wooden Boxes

¹: Length × Width × Height as seen from the front of the machine

4.3.2 Examining for Missing Parts

All parts supplied in the machine package are shown on the packing list. When removing the supply of the shipment, examine the contents against the packing list of the missing parts.

4.3.3 Removing Transport Locks

To prevent the uncontrolled movement of the machine parts, transport locks are installed to attach the machine to the wooden boxes. Remove the transport locks when the boxes are removed.

Transport Locks on the Take-off Unit

On the box of the take-off unit, 4 mounting devices **1** are attached to the bottom pallet **2**. 4 mounting devices are necessary in the installation of the take-off unit. After the installation is completed, the mounting devices are to be removed.

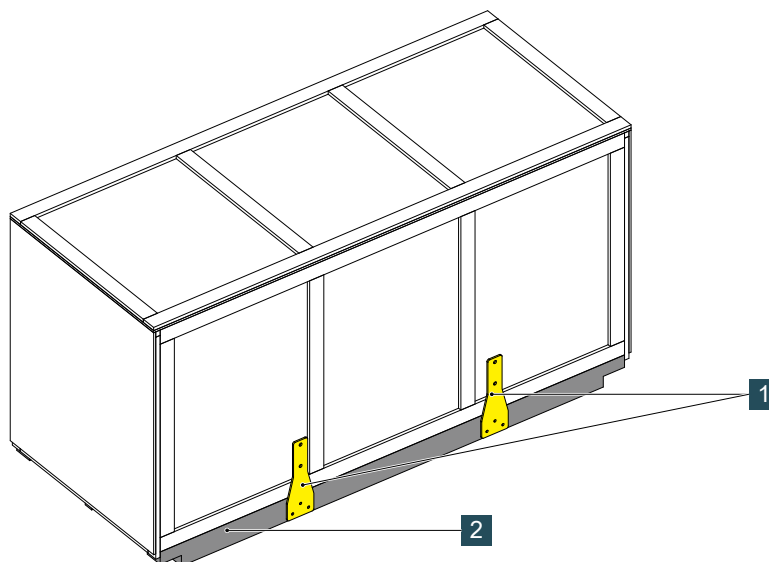


Figure 42: Mounting devices

The take-off unit has 3 transport locks on. 1 transport lock is in the front, and 2 transport locks are in the rear. When removing the take-off unit, all the transport locks are to be removed.

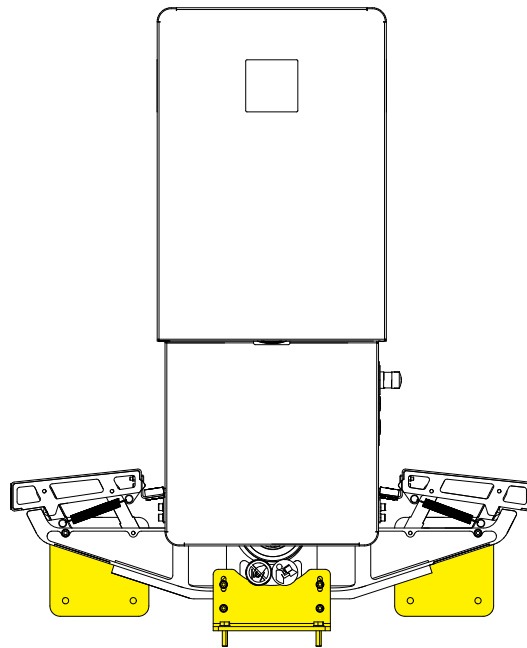


Figure 43: Transport locks on take-off unit (Front view)

Transport Locks on the Tower

The tower has 3 transport locks (1 transport lock **3** and 2 transport locks **5**) and 4 assembly angles **4** on.

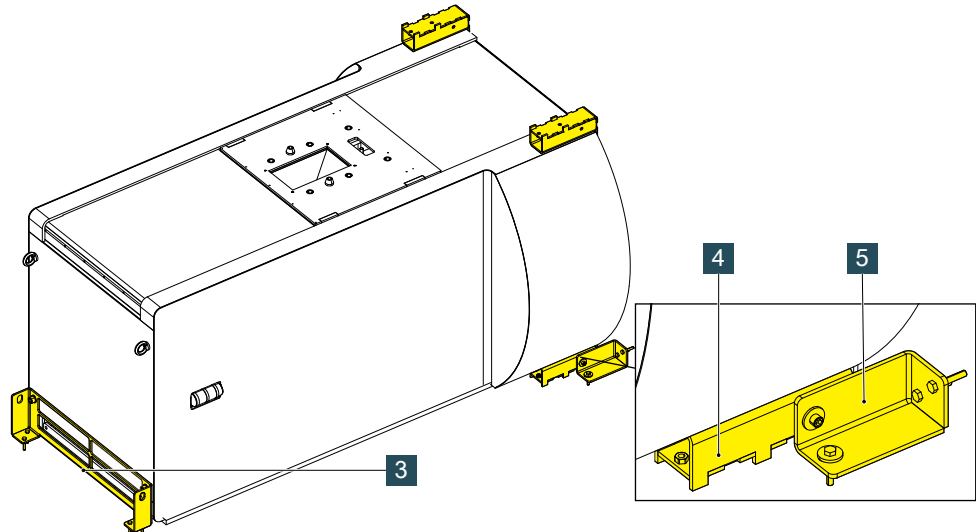


Figure 44: Transport locks on tower

When removing the tower, the 3 transport locks (1 transport lock **3**, 2 transport locks **5**) are to be removed. The 4 assembly angles **4** are necessary in the installation of the tower. After the installation is completed, the assembly angles are to be removed.

Transport Locks on the Chassis

The chassis has 4 transport locks **7** and 4 assembly angles **6** on.

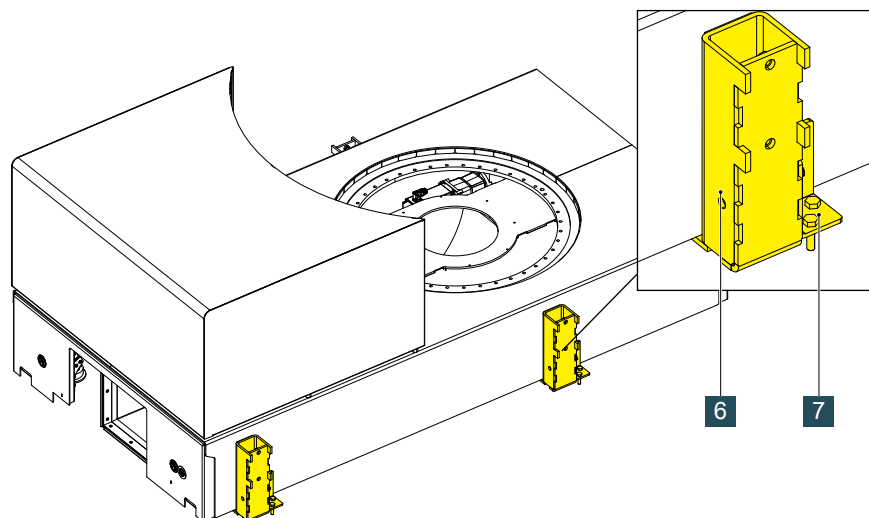


Figure 45: Transport locks on chassis

When removing the chassis, the 4 transport locks **7** are to be removed. The 4 assembly angles **6** are necessary in the installation of the chassis. After the installation is completed, the assembly angles are to be removed.

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5 Installation

This chapter contains the information about:

- The necessary installation conditions
- The necessary installation personnel
- How to prepare the set-up location for the machine.
- The necessary installation material
- The installation of the machine

5.1 Floor Condition

Floor Structure

If the floor structure is not stable or not flat, the machine is possible to be damaged.

Only approved personnel can make a plan of the floor structure. The floor load of each machine foot is to be obeyed. The soft materials such as slag, sand, and asphalt are not to be used as an intermediate layer **2**. If the soft materials are used as the intermediate layer, the vibration that the machine causes makes the intermediate layers **2** move.

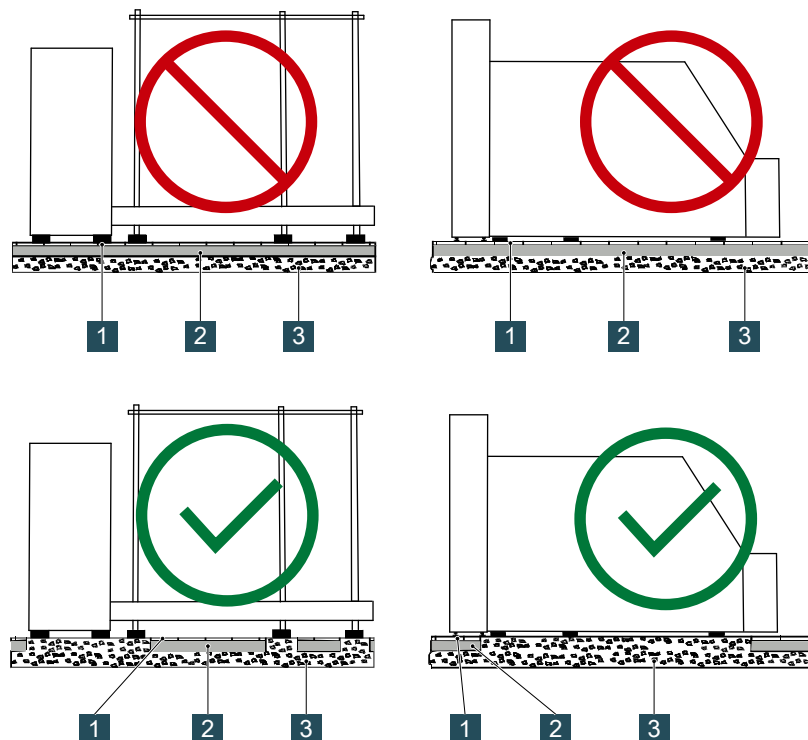


Figure 46: Floor condition

1 Flooring

2 Intermediate layer

3 Concrete substrate

The flooring **1** such as clinker, concrete slabs, or hard surfaces are not to be installed on the intermediate layers **2** that are made of slag, sand, and asphalt. To have a horizontal surface, minimum the area of the machine foot is to be filled with concrete substrate **3**.

Rieter accepts no liability for machine damage that is caused because the incorrect floor structure was used.

Floor Properties

The floors must have the properties that follow:

- Not aggressive to metals
- High abrasion resistance
- High compressive strength
- Slip-resistant
- Hard and tough, non-ceramic
- Resistant to oils, fuel, acids, and alkalis

Level and Evenness of the Floor

For each running meter	±4 mm
For each 4 m	±10 mm

5.2 Installation Requirements for the Customer

The customer:

- Gives an introduction about the danger zones of the installation site
- Tells the installation personnel about the site-specific safety regulations
- Makes sure the site-specific safety
- Must install the necessary rails
- Makes sure that the training for the installation personnel is held before the installation
- Makes sure that the installation personnel of the customer is not changed during the installation
- Makes sure that the installation personnel have access to the operation manual

5.3 Installation Personnel

Only Rieter personnel or Rieter approved personnel are permitted to install the machine.

6 Commissioning

This chapter contains the information about:

- The commissioning personnel
- The initial commissioning of the machine
- The recommissioning after a temporary decommissioning
- The function test

6.1 Commissioning Personnel

Only Rieter personnel or Rieter approved personnel are permitted to commission the machine.

6.2 Recommissioning after a Temporary Decommissioning

For the recommissioning of the machine the check list that follows is to be used:

- The machine is in a damage-free condition.
- The power supply is connected.
- The compressed-air supply is connected.
- The anti-corrosion agent is removed.
- All technology components are clean.
- Tension is applied to all timing belts, flat belts, or V-ribbed belts.
- The padlock is removed from the main switch.
- The direction of rotation of the motors is examined.
- Necessary operating fluids are filled.

6.3 Introduction to Commissioning

This section contains the information about commissioning without material for the parts that follow:

The commissioning work has 4 different situations as follows:

Initial Commissioning after Installation

Machines that are manufactured by Rieter are to be commissioned by Rieter personnel.

If the installation or initial commissioning is done by a third party, Rieter rejects all and any form of liabilities.

See *Commissioning without Material* ► 66

Commissioning after Assortment Change

After each assortment change, the adjustments are to be made accordingly.

See *Setting the Machine before Production* ▶ 94

Commissioning after Maintenance and Repair Work

After the maintenance and repair work, the machine is to be commissioned.

See *Commissioning without Material* ▶ 66

Recommissioning after Temporary Decommissioning

For recommissioning, the check list that follows is to be obeyed:

- Put the machine into safe status.
- Connect the power again.
- Remove the corrosion preventive.

See *Recommissioning after a Temporary Decommissioning* ▶ 65

6.4 Commissioning without Material

This section contains the information about commissioning without material for the parts that follow:

- Safety switch
- Emergency stop button
- Sensor
- Take-off unit
- Take-off roller
- Chassis
- Plant signal

6.4.1 Doing the Function Test of the Safety Circuits

1. Set the main switch to the position ON.
2. Make sure that the machine is ready for operation.
 - ⇒ The message **Ready to start (XX)** is shown.
3. Do the function test of the safety circuits. See *Doing the Function Test of the Safety Circuits* ▶ 174

Result The function test of the safety circuits is done.

6.4.2 Doing the Function Test of the Take-off Unit

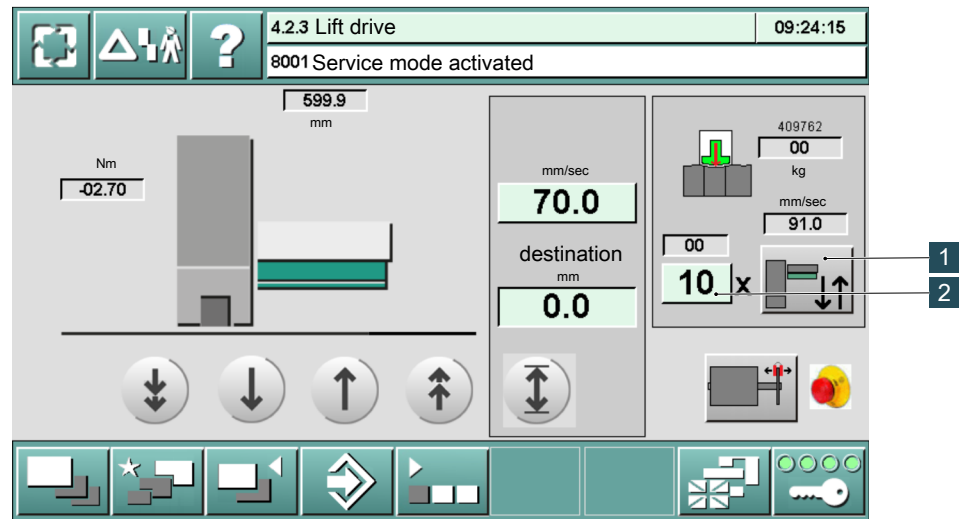


Figure 47: Function test of the take-off unit

Test Cycles

The number of the cycles for function test of the take-off unit movement can be set.

Range	4 – 100
Default	10

Function Test

Prerequisites Make sure that the criteria are obeyed:

✓ No bales or pallets are below the take-off unit.

1. Enter the number of the test cycles in the test cycle field **2**.
2. Tap the [Start] touch key **1**.
⇒ A green rectangle shows around the [Start] touch key **1**.
3. Push the start button on the control console.
⇒ The function test of the take-off unit movement is started.

Result The function test is completed when the take-off unit is tested in the set cycle.

Stopping the test There are 3 methods to stop the test:

- Push the stop button on the control console.
- Go to other data screens.
- Complete the test cycles.

6.4.3 Doing the Function Test of the Take-off Roller

The function test of the take-off roller can be done in the data screen 4.2.6.

Turn Speed

The turn speed of the take-off roller can be set for the function test.

Range	10 – 2 200 rpm
Default	500 rpm

Clockwise Turn

A functional test of the clockwise turn of the take-off roller can be done.

Counterclockwise Turn

A functional test of the counterclockwise turn of the take-off roller can be done.

6.4.4 Doing the Function Test of the Chassis

The information that follows is about the function test of the chassis.

6.4.4.1 Speed and Movement

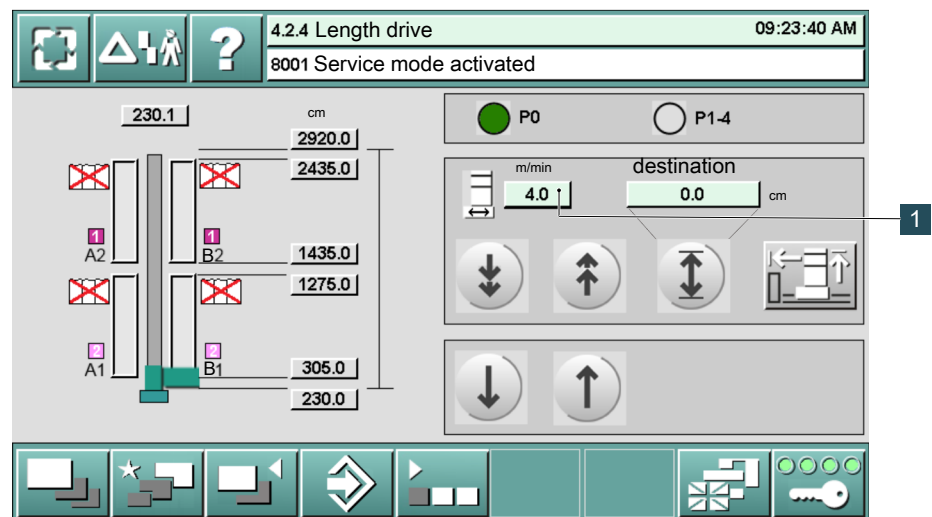


Figure 48: Speed and Movement

Chassis Movement Speed for the Test

The chassis movement speed can be set in the value field **1**.

Range	4 – 24 m/min
Default	8 m/min

Chassis Movement

The chassis can be moved forward in the procedure that follows:

- Move the chassis forward at the chassis movement speed with the [Fast Forward] touch key.

- Move the chassis forward slowly with the [Slowly Forward] touch key.

The chassis can be moved rearward in the procedure that follows:

- Move the chassis rearward at the chassis movement speed with the [Fast Rearward] touch key.
- Move the chassis rearward slowly with the [Slowly Rearward] touch key.

6.4.4.2 Destination Point and Direct Movement

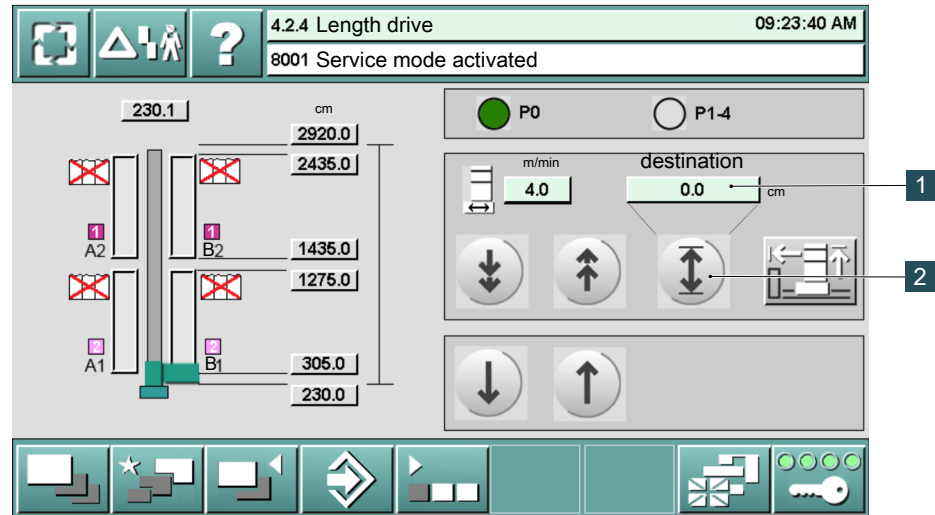


Figure 49: Destination Point and Direct Movement

Destination Point

The destination point of the chassis movement can be set in value field **1**.

Direct Movement

The chassis can be moved directly to the destination point with the [Direct Movement] touch key **2**.

6.4.4.3 Back-to-P0

The chassis can be moved directly back to the 0 position with the [Back-to-P0] touch key.

The machine moves back to the 0 position in 3 steps:

1. The take-off unit lifts to the highest position.
2. The tower turns to position 0° or position 180°.
3. The chassis moves directly back to the 0 position.

6.4.5 Doing the Function Test of the Plant Signals

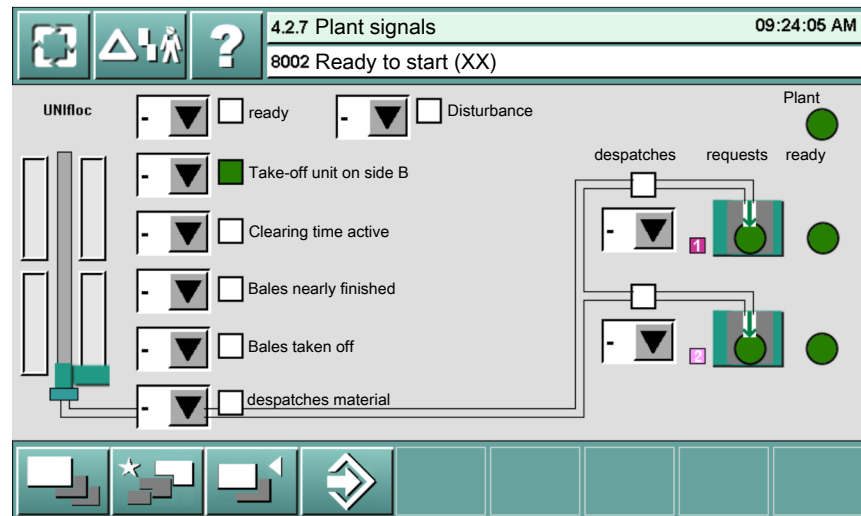


Figure 50: Plant signals

	Input signal
	Output signal
	Output signal selection

Signal Status

The status of each input signal or output signal shows in 2 colors:

White	Off
Green	On

Plant Signals

The output signals can be selected as follows to examine the connection between the machine and the UNIfloc:

0 (0 VDC)	The output signal is off.
1 (24 VDC)	The output signal is on.
–	The output signal is related to the machine conditions currently.

When the user selects the value 1, the user can control the UNIfloc with the UNIfloc.

Example

In the field **Take-off unit on side B**, if you select “–”, then the output signal of the take-off unit on side B is related to the machine conditions currently:

- When the take-off unit operates on side B, the output signal changes to green.

- When the take-off unit does not operate on side B, the output signal changes to white.

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7 Operation

This chapter contains the information about:

- The operating personnel
- The name and the location of the display elements and the operating elements
- The operating units
- How to adjust the machine without material and with material
- How to start the machine and the operation procedure
- The operation of the machine during the operation procedure
- How to stop the machine and the operation procedure

7.1 Operating Personnel

Only Rieter approved personnel are permitted to operate the machine.

7.2 Display Elements

This chapter contains the information about the display elements of the machine.

7.2.1 Indicator Lamps

The indicator lamps show the operation condition of the machine.

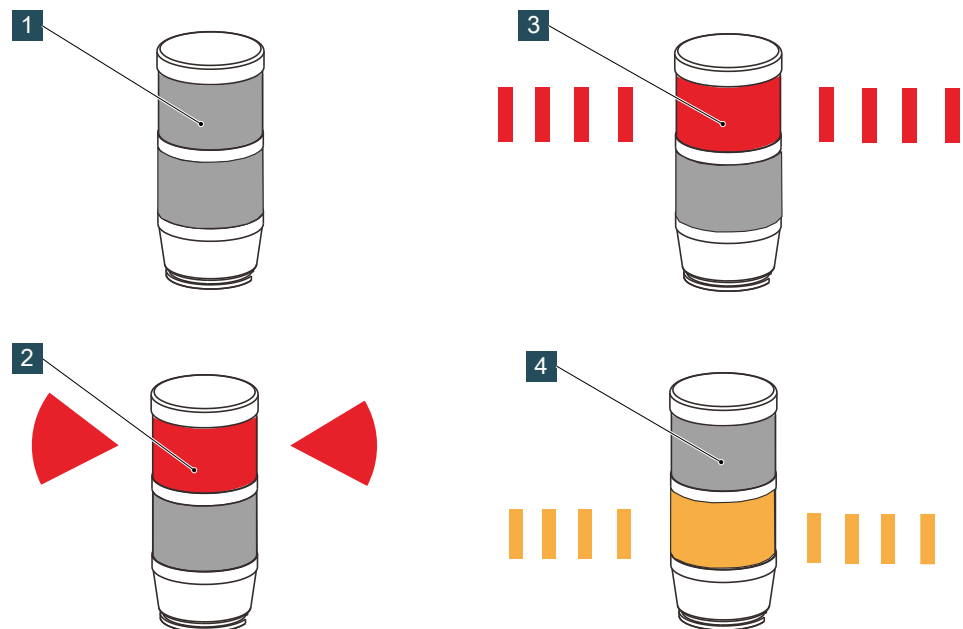


Figure 51: Indicator Lamps

The indicator lamps have 4 different indications:

- OFF **1**

- ON **2**
- Flashing **3**
- Flashing (safety signal) **4**

OFF

Situation 1: The main switch is OFF. The signal lamps are OFF.

Situation 2: The machine is in production.

ON

Situation 1: The machine is at a standstill.

Situation 2: An error occurs.

Situation 3: The machine stops after the stop button is pushed.

Flashing

A bale group is fully or almost fully removed.

Flashing (Safety Signal)

Situation 1: Flashes for 3 seconds after the start button is pushed.

Situation 2: Flashes for 3 seconds when the production starts and the raw-material supply stops.

Situation 3: Flashes when the tower turns.

7.3 Operating Elements

This chapter contains the information about the operating elements of the machine.

7.3.1 Main Switch

The main switch is on the right side of the control console. The main switch connects the power supply to the machine (ON position) or disconnects the power supply from the machine (OFF position).

The main switch must be padlocked after you set the main switch to OFF position.

7.3.2 Control Console

The control elements are on the front door of the control console.

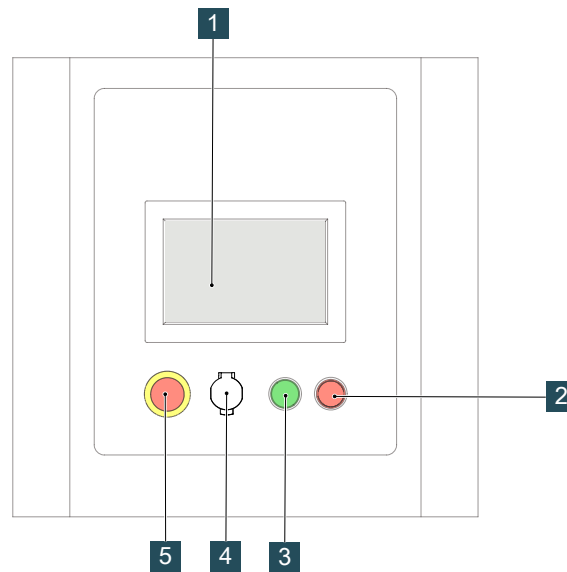


Figure 52: Control elements

Description The control elements have parts as follow:

- The panel **1**
- The stop button **2**
- The start button **3**
- The USB interface **4**
- The emergency stop button **5**

Panel

The panel is a display-and-control interface for the operators to monitor and to operate the machine. The panel has a touch-sensitive screen. Operators touch the panel to operate the machine.

Stop Button

When the stop button is pushed, the machine stops production.

Start Button

The start button has different functions:

- When the data screen Overview shows on the panel, the operator pushes the start button to start production.
- When other data screens show on the panel, the operator pushes the start button to start operation.

USB Interface

The USB interface is the access for operators to use USB disks to upload or download files.

Emergency Stop Button

The emergency stop button is pushed to stop all machine parts immediately.

7.3.3 Control Elements on the Take-off Unit

The control elements are on the right side of the take-off unit.

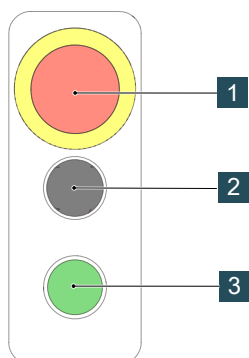


Figure 53: Control Elements on the Take-off Unit

Operators can use the 3 buttons to clean blockages at the take-off roller:

- The emergency stop push button **1** stops the machine.
- The lift-up button **2** lifts the take-off unit.
- The start button **3** starts production.

7.3.4 Data Screens

The information that follows is about the data screens shown on the panel of the control console.

7.3.4.1 Menu Structure and Data Screens

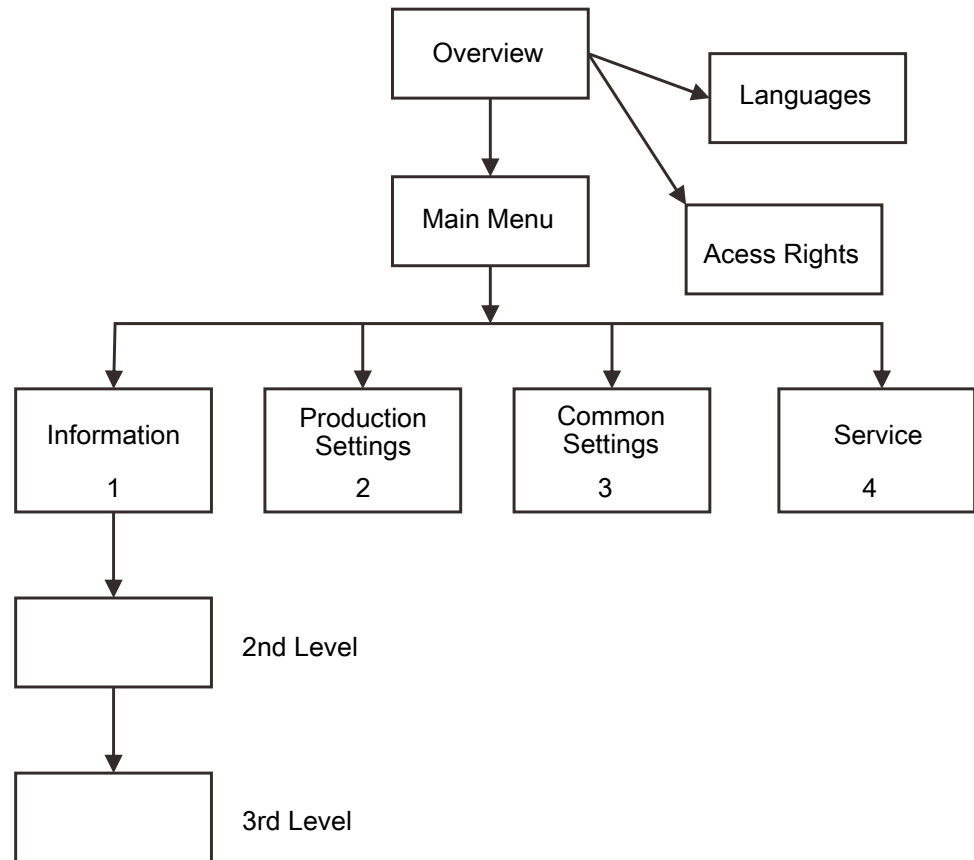


Figure 54: Menu Structure

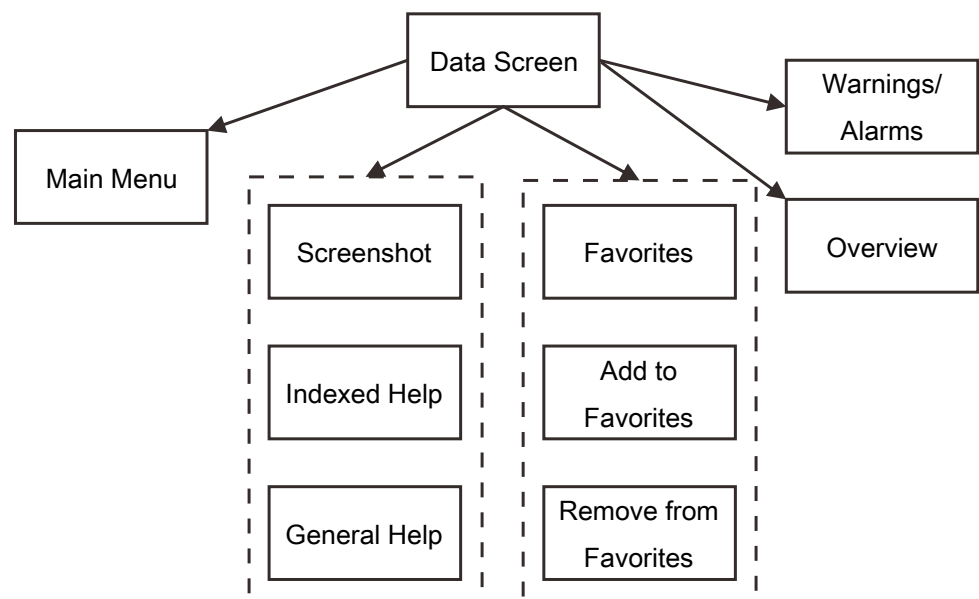


Figure 55: Data Screens

7.3.4.2 Status Bar

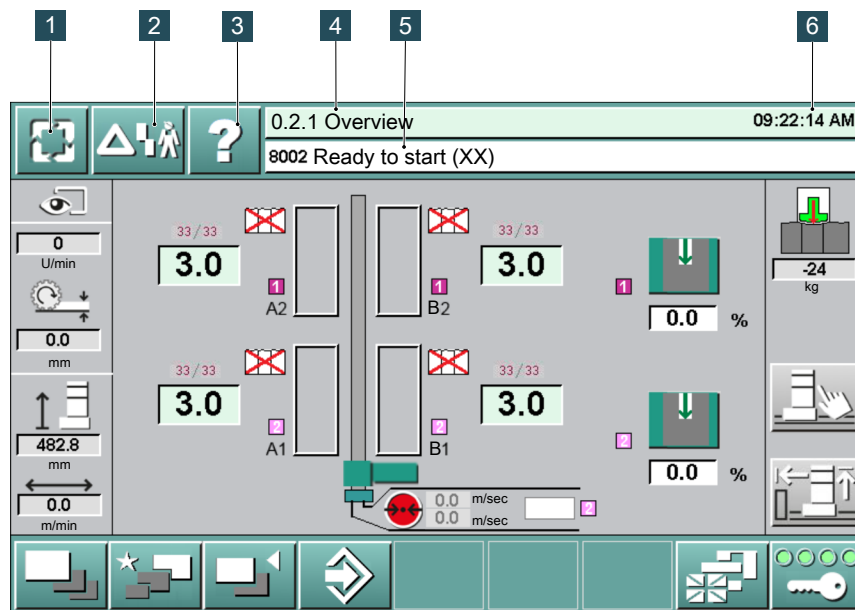


Figure 56: Status Bar

1	Operation mode	2	Alarms / Warnings
3	Help	4	Data screen name
5	Machine status	6	Time

Operation Mode

	Standstill
	In operation
	Service

Alarms / Warnings

Alarms / Warnings are shown in 3 colors:

- White
- Yellow
- Red

	White: No warnings, alarms, or maintenance warnings occur.
--	---

	Red: Alarms occur
	Yellow: Warnings occur
	Yellow: Maintenance warnings occur.

Help

	Help
	Screenshot
	Indexed help
	General help

7.3.4.3 Menu Bar

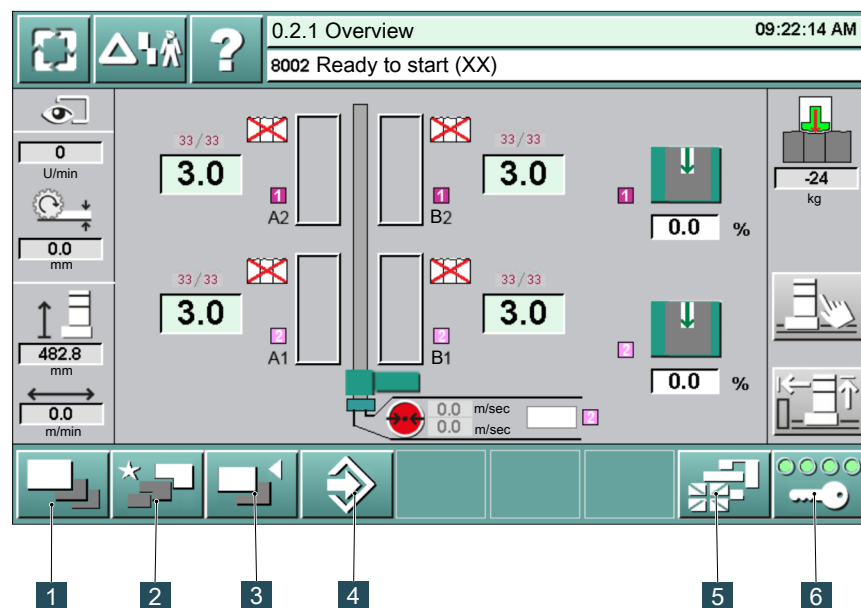


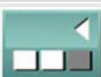
Figure 57: Menu Bar

1 Overview	2 Favorites
3 Previous data screen	4 Main menu
5 Language	6 Access rights

Favorites

	Favorites
	Add to favorites
	Remove from favorites

Navigation

	Previous data screen
	Next data screen
	Previous data screen of the same level
	Next data screen of the same level

Other Operation Buttons

	Confirmation button
	Cancel button
	Delete button

7.3.4.4 Main Menu

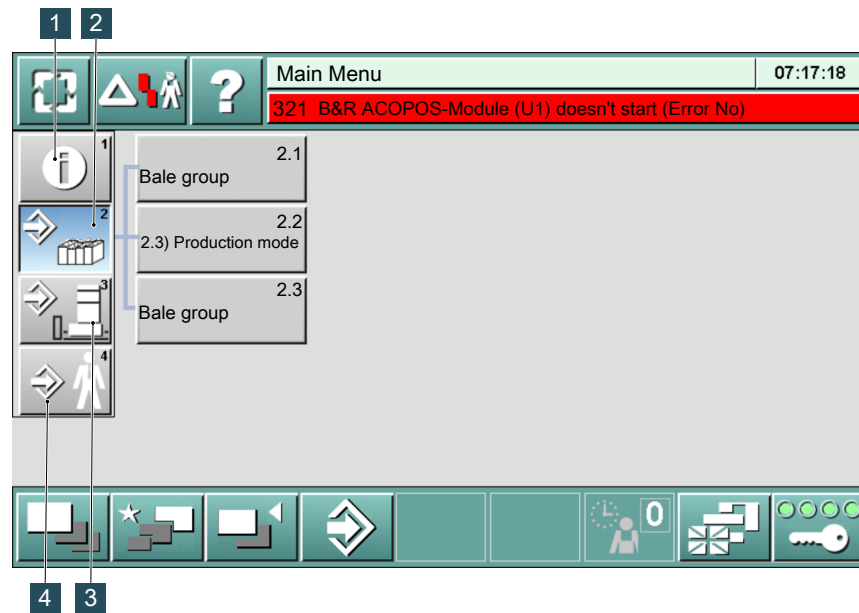


Figure 58: Main Menu

- | | |
|------------------|----------------------|
| 1 Information | 2 Production setting |
| 3 Common setting | 4 Service |

7.3.4.5 Bale Group Information

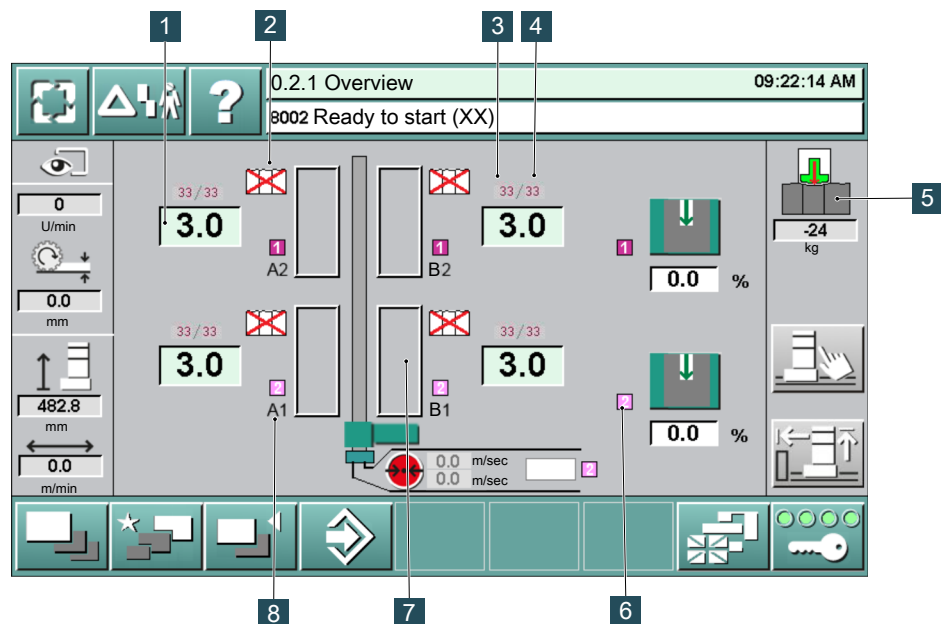


Figure 59: Bale Group Information

- | | |
|------------------|-----------------------|
| 1 Take-off depth | 2 Not-prepared signal |
|------------------|-----------------------|

3	The power consumption of the take-off roller drive (forward)	4	The power consumption of the take-off roller drive (rearward)
5	Take-off unit pressure	6	Assortment
7	Bale-group height	8	Bale group name

Power Consumption of the Take-off Roller Drive

This shows the percentage of the take-off roller drive's average power consumption in the previous take-off flow when:

- The chassis moves forward **3**
- The chassis moves rearward **4**

Take-off Unit Pressure

This shows how much pressure the take-off unit pushes onto the bale group.

Bale Group Height

This shows how high the raw materials are in the bale group. After you touch the bale group height, the data screen 2.3 shows to let you set each bale group's position.

Assortment

This is which UNImix the bale group tufts go into.

“Not-Prepared” Signal

This shows that the bale group is not prepared for production currently. When the signal goes out of view, the bale group is prepared for production.

Take-off Depth

This shows the depth value that is set for the take-off unit to take off the bale group. After you touch the take-off depth, the data screen 2.1 shows to let you set each bale group.

7.3.4.6 Product Information

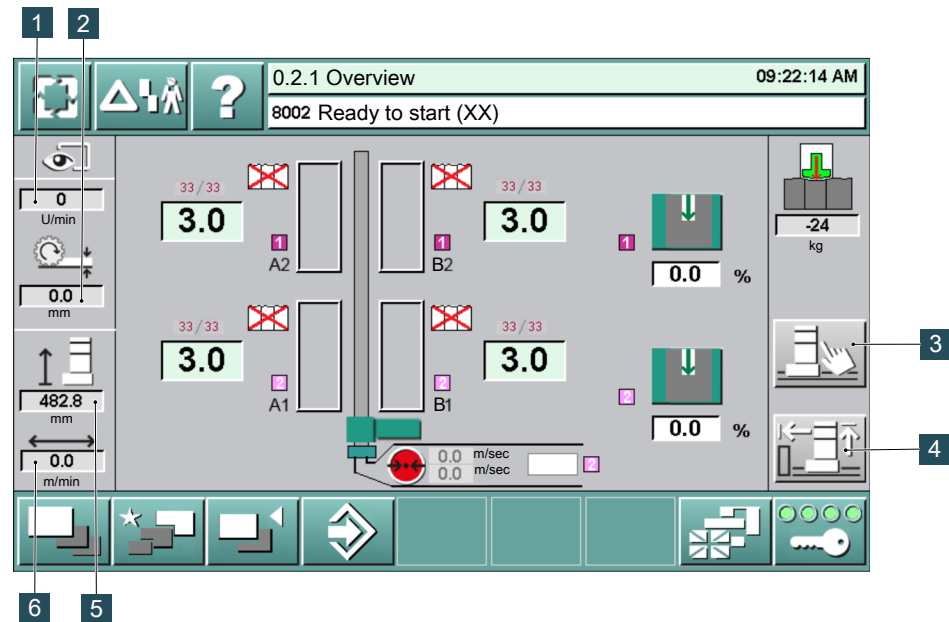


Figure 60: Product Information

1	Take-off roller speed	2	Take-off depth
3	Manual operation	4	Back-to-P0
5	Take-off unit height	6	Chassis movement speed

Take-off Roller Speed

This shows the speed of the take-off roller currently.

Take-off Depth

This shows the depth value that the take-off unit takes off the bale group currently.

Manual Operation

After you touch the manual operation button, data screen 5.1 shows to let you manually operate the machine.

Back-to-P0

After you touch the back-to-P0 button, the chassis moves back to its 0 position on the channel.

Take-off Unit Height

This shows the height between the take-off unit and the 0 position of the take-off unit currently.

Chassis Movement Speed

This shows how quickly the chassis moves currently.

7.3.4.7 Suction Process Information

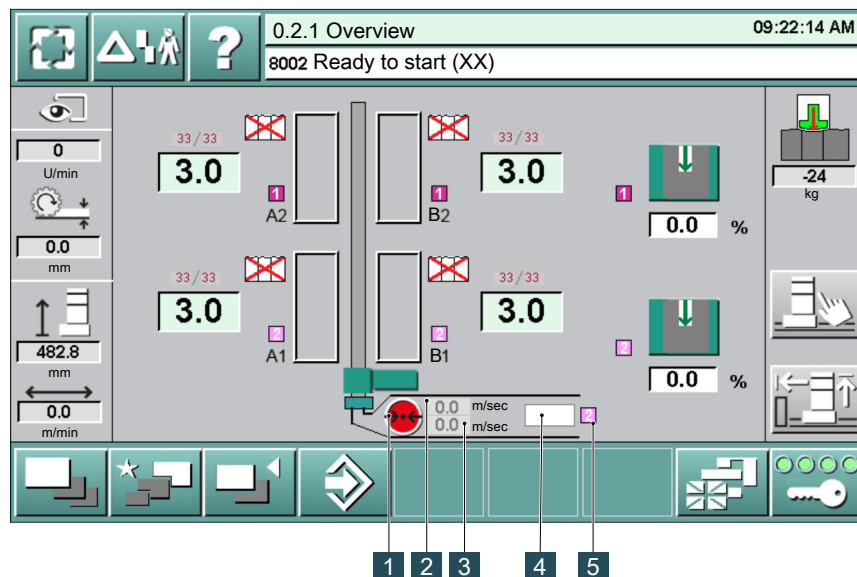


Figure 61: Suction Process Information

1	Suction status	2	Suction speed
3	Air volume	4	Tufts-supply status
5	In-operation assortment		

Suction Status

The suction status is shown in 3 colors:

- Red: Not prepared, or not sufficient suction
- Yellow: In operation
- Green: Prepared, or sufficient suction

Suction Speed

This shows how quickly the air stream goes through the pipe currently.

Air Volume

This shows how much the air volume goes through the pipe currently.

Tufts-Supply Status

The tufts-supply status is shown in 2 colors:

- White: Tufts are not supplied currently.

- Green: Tufts are supplied currently.

In-Operation Assortment

This is which UNImix the tufts are supplied to currently.

7.3.4.8 UNImix Information

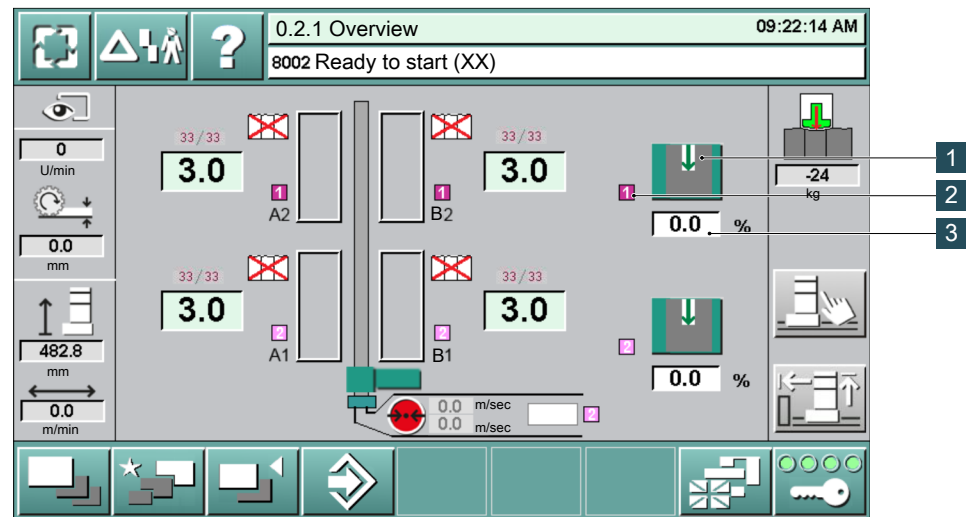


Figure 62: UNImix Information

1	UNImix status	2	Assortment
3	Stop/Go		

UNImix Status

The UNImix has 2 statuses:

- With a green arrow: The UNImix is prepared for tufts to go into.
- Without a green arrow: The UNImix is not prepared for tufts to go into.

Assortment

This shows that which bale assortment goes into the UNImix.

Stop/Go

This shows the Stop/Go ratio of the A 12 machine in the last 15 minutes.

The Stop/Go is the ratio between the time that the machine produces and the time that the machine stands still. For example, if the Stop/Go ratio is 80%, it shows that the machine is 80% of the time in production and 20% of the time in standstill.

7.3.4.9 Positions

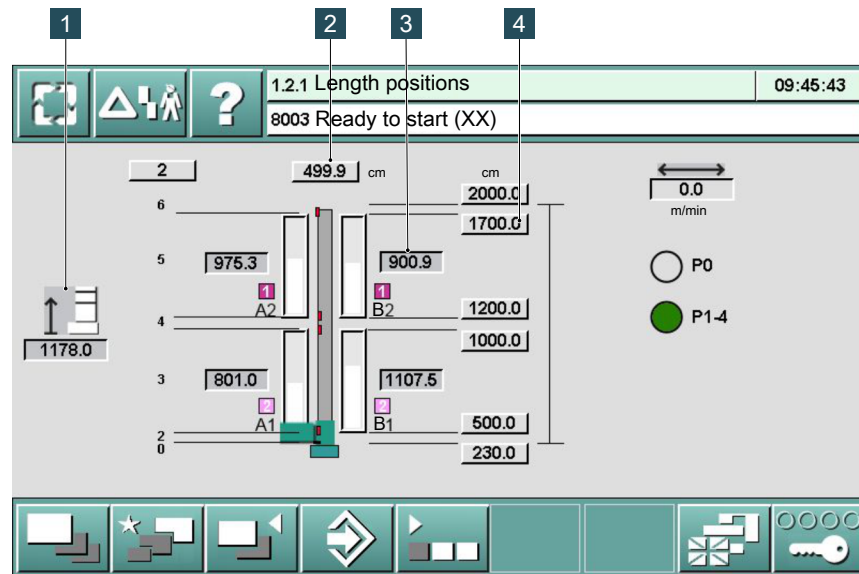


Figure 63: Positions

- | | |
|------------------------|----------------------------|
| 1 Take-off unit height | 2 Chassis position |
| 3 Bale group height | 4 Each bale group position |

This data screen shows the actual height of the take-off unit and the actual position of the chassis currently. The data screen also shows the height of each bale group and the position of each bale group.

7.3.4.10 Take-off

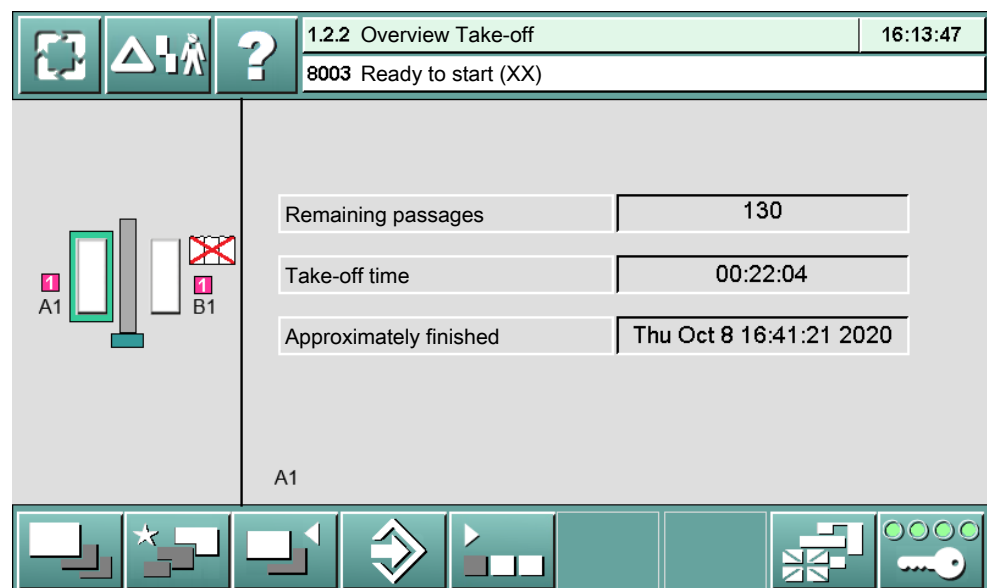


Figure 64: Overview Take-off

Remaining passages

Number of passages which are still necessary until the bale group is taken off. The calculation is based on the current data and settings. Especially in production mode 1 the display is rather inaccurate.

Take-off time

Take-off time required until the bale group is taken off.

Approximately finished

Point in time when the bale group should be taken off. The current stop / go ratio is taken into account.

7.3.4.11 Alarms/Warnings

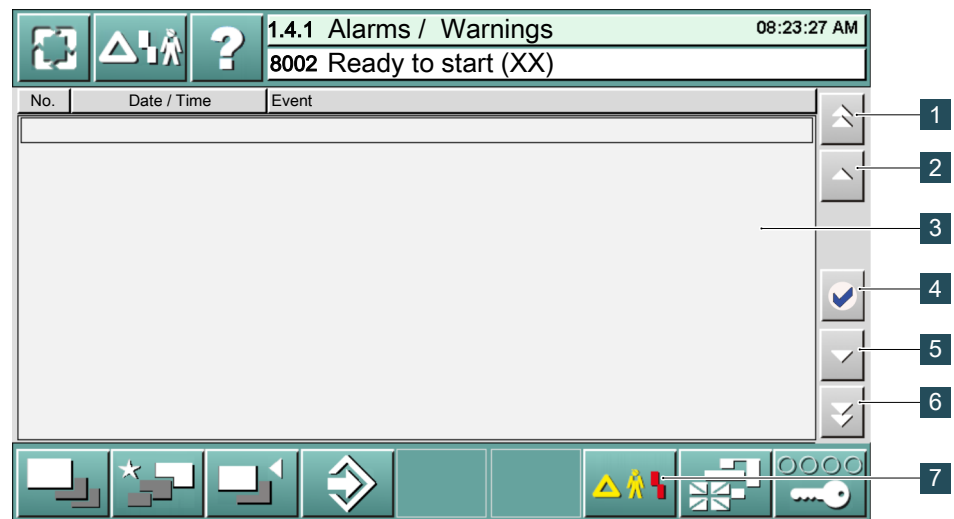


Figure 65: Alarms/Warnings

1	Previous page	2	Previous item
3	List	4	Confirmation button
5	Next item	6	Next page
7	Alarms / Warnings filter		

This data screen shows all alarms and warnings. Alarms / Warnings filter **7** lets you select which type of information to show.

Confirmation Button

The confirmation button confirms the alarms or the warnings. The alarms or the warnings will go out of view after the confirmation.

Alarms / Warnings Filter

	Warnings and alarms
	Alarms
	Warnings
	Maintenance warnings

7.3.4.12 System Diagnostic

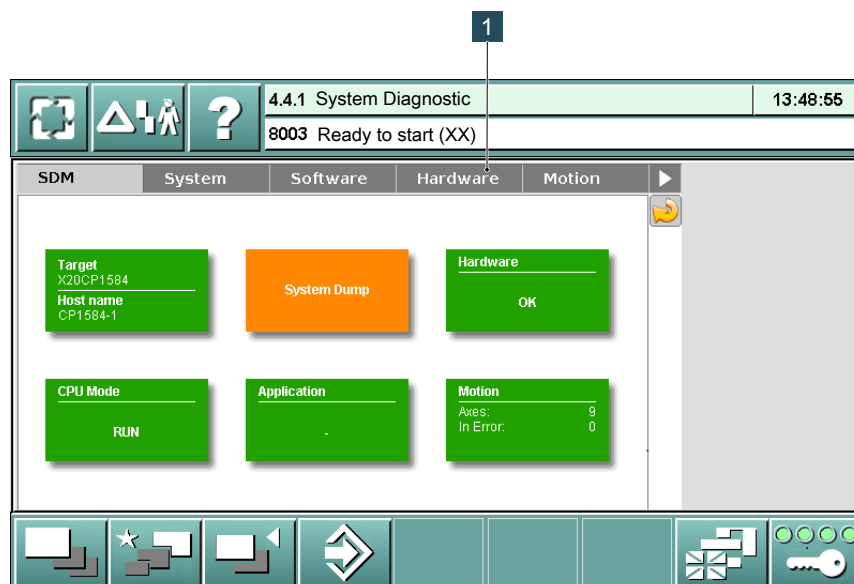


Figure 66: 4.4.1 System Diagnostic

If the machine has any hardware error, the user can analysis the hardware problems with the data screen 4.4.1 **System Diagnostic** with the user Administrator.

When the user taps the touch key **Hardware** **1**, the hardware tree as follow shows in the data screen.

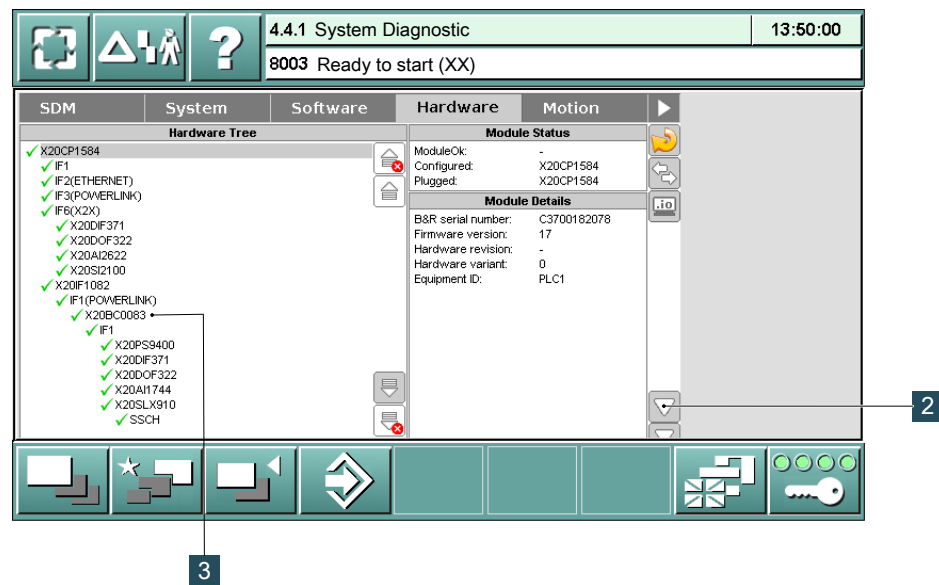


Figure 67: 4.4.1 System Diagnostic_hardware tree_1

When the user taps the touch key **2**, the data screen that follows shows. From the item X20BC0083 **3**, the user checks the items that have the symbols **4** show in front to find the error of the Power Link communication.

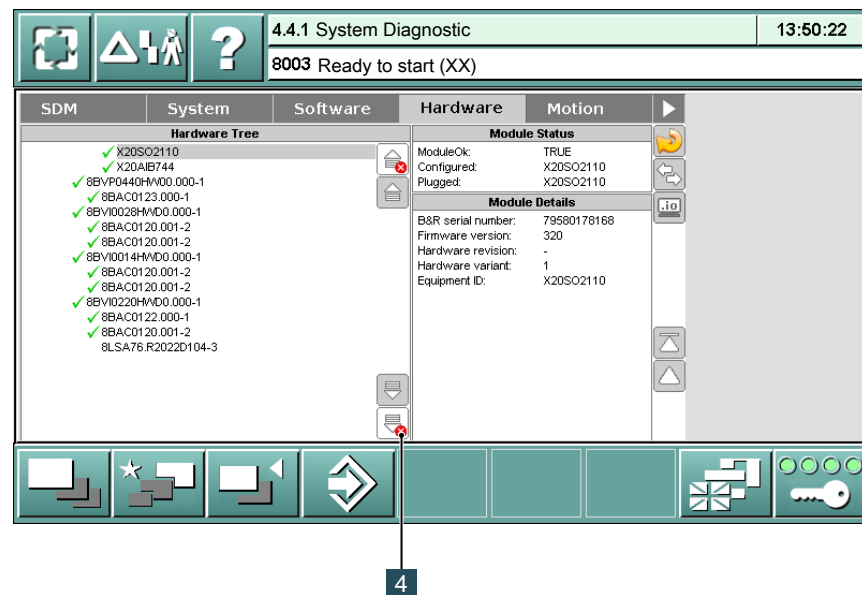


Figure 68: 4.4.1 System Diagnostic_hardware tree_2

The figures that follow show the Power Link communication has error between the control station and the tower.

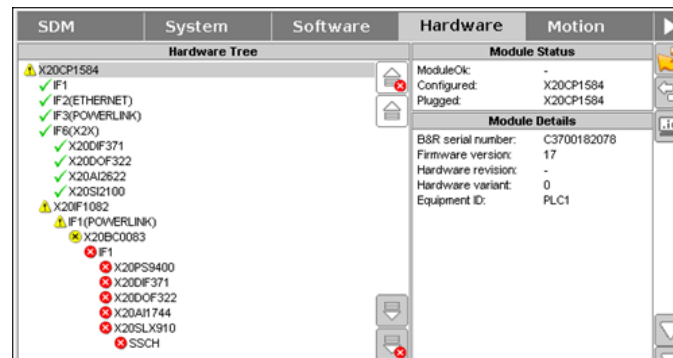


Figure 69: 4.4.1 System Diagnostic hardware tree_3

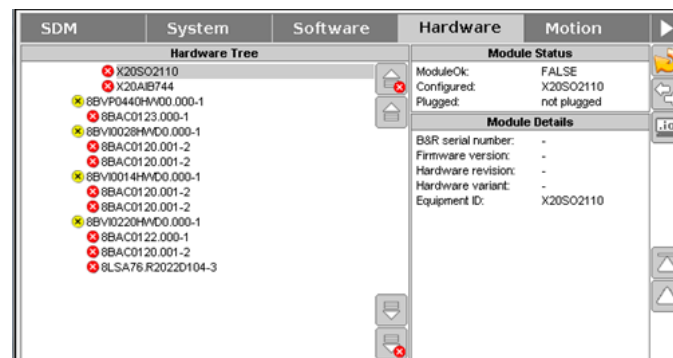


Figure 70: 4.4.1 System Diagnostic hardware tree_4

7.3.4.13 Touch Keys

Item	Name	Item	Name
	[Overview]		[Favorites]
	[Language]		[Access Rights]
	[User Administration]		[Main Menu]
	[Previous Data Screen]		[Next Data Screen]
	[Previous Data Screen of the Same Level]		[Next Data Screen of the Same Level]
	[Confirmation]		[Cancel]
	[Delete]		[Log Out]

Item	Name	Item	Name
	[Manual Operation]		[Back-to-P0]
	[Quickly Down] or [Quickly Rearward]		[Slowly Down] or [Slowly Rearward]
	[Quickly Up] or [Quickly Forward]		[Slowly Up] or [Slowly Forward]
	[Quickly Clockwise Turn]		[Slowly Clockwise Turn]
	[Quickly Counterclockwise Turn]		[Slowly Counterclockwise Turn]
	[Directly Turn to Position 0°]		[Directly Turn to Position 180°]
	[Direct Movement]		[Position Confirmation]
	[Increase]		[Decrease]

7.3.4.14 Input Boxes, Dropdown Menus, and Touch Keys

The user operates the machine on the data screen with 3 types of operations:

- Input boxes
- Dropdown menus
- Touch keys

Example

Type	Figure
Input Box	
Dropdown Menu	
Operation Key	

Input Boxes

The input boxes with the light-green background are for data input.

A keypad shows after an input box is tapped. The input value must be in the permitted range. The permitted range for each value shows at the top of the keypad.

Dropdown Menus

The dropdown menus are for the information selection.

The selectable information shows after you tap a dropdown menu.

Touch Keys

The touch keys are for machine operation.

A green box shows around the touch key after a touch key in a data screen is tapped. The green box stays for only 5 seconds. During the 5 seconds, the start button on the control console should be pushed 1 time or be kept pushing to start the operation.

In the data screen 2 and data screen 3, the start button should be pushed for only 1 time.

In data screen 4, the start button should be pushed as follows.

Data Screen	Touch keys	Operation
4.2.3 Lift drive		Keep pushing the start button.
4.2.4 Length drive		Push the start button 1 time to start the movement. Push the stop button 1 time to stop the movement.
4.2.5 Swivel drive		Keep pushing the start button.
4.2.5 Swivel drive		Push the start button 1 time.
4.2.6 Take-off drive		Push the start button 1 time.
4.3.1 Lift drive positioning		Keep pushing the start button.
4.3.2 Swivel drive positioning		Keep pushing the start button.

Data Screen	Touch keys	Operation
4.3.3 Length drive range		Push the start button 1 time.

7.3.4.15 Example of Operating Operation Keys

Prerequisites Make sure that the criteria are obeyed:

✓ The data screen that includes the [Fast Down] touch key shows.

1. Tap the [Fast Down] touch key.

⇒ A green rectangle shows around the [Fast Down] touch key.

2. Push and hold the start button on the control console.

Result The take-off unit moves down quickly.

7.3.4.16 Exporting the Data

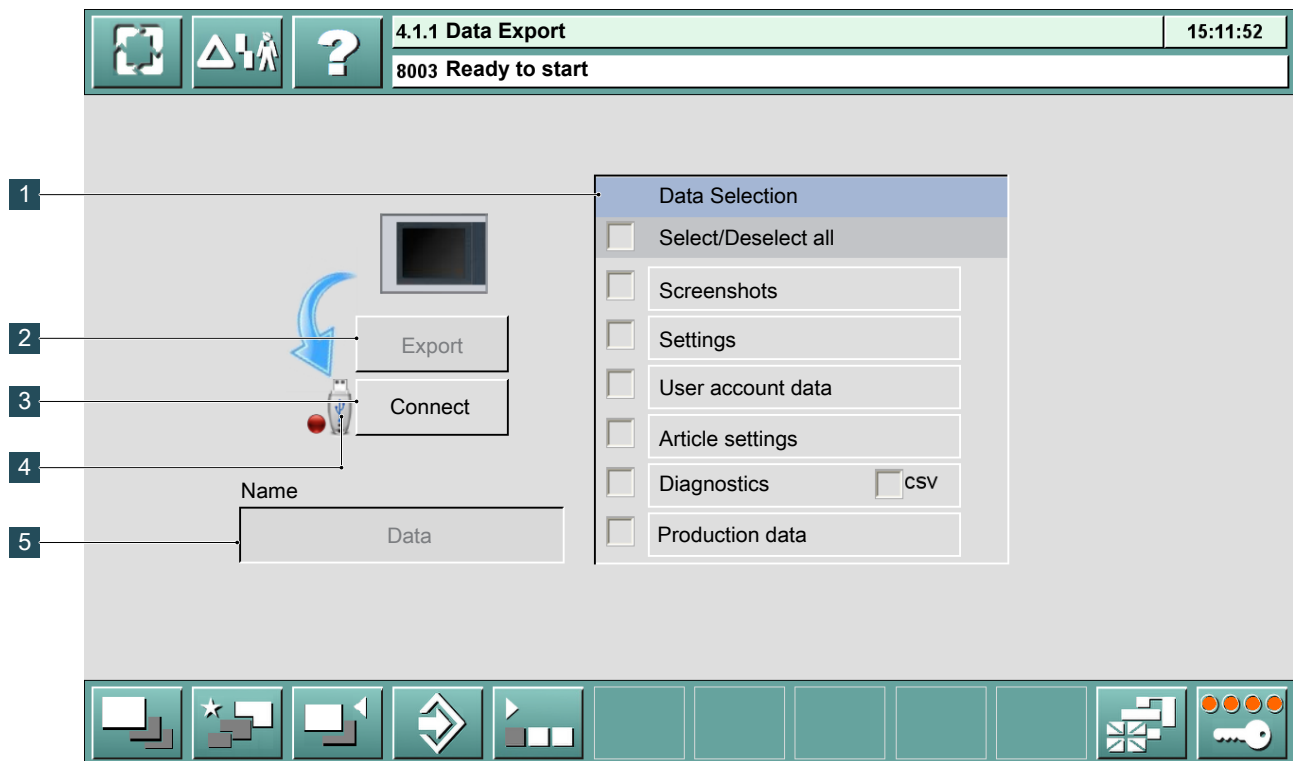


Figure 71: Data screen 4.1.1 Data Export

1 Data selection	2 Key Export
3 Key Connect	4 Status indicator
5 Name of the file	

1. The user connects the USB flash drive to the USB port.

2. The user taps the key **3** to build connection to the inserted USB storage.

3. The user examines the status indicator **4**. (Red shows that the USB storage device is not engaged, read, or recognized. Green shows that the USB storage device is recognized.)
4. The user selects the data to be exported in the field **1**.
5. The user taps the key **2** to start the export of the selected data.
6. The user sees the name of the file in the field **5**. (The default folder name is Data.)

7.4 Setting the Machine before Production

This section contains the information about setting the machine before production.

7.4.1 Access Concept



Figure 72: Touch key User login

The touch key User login has the functions that follow:

- The access rights of the logged-in user are shown by tapping this touch key.
- The data screen **0.3 Access** is opened by tapping this touch key.

The access rights that follow are shown by green LEDs:

- Settings
- Maintenance
- Administration

The administrator has all the authorizations above.

Display of Access Rights

Authorization	Access Rights	Description	Display Icon
Level 0	No authorization	The user is not permitted to change the setting in the data screens. Not all data screens and functions are available. The data screens have no password protection.	
Level 1	Settings	The user can change values in the automatic mode. No extended operation is permitted.	

Authorization	Access Rights	Description	Display Icon
Level 3	Maintenance	The user can do all settings and functions for maintenance.	
Level 4	Administration	The user can do all settings and functions.	

Authorizations of the Preset User Accounts

User Accounts	Default Password	Display Icon	Access Rights			
			Settings	Extended Settings	Maintenance	Administration
Shift supervisor	1111		X			
Maintenance	3333		X	X	X	
Administrator	admin		X	X	X	X
Rieter Service	Supplied by Rieter--		X	X	X	X
Rieter Development	Supplied by Rieter		X	X	X	X

7.4.2 User Account

This section contains the information about how to operate the user account.

7.4.2.1 Doing the User Login

1. Tap the user login key.



Figure 73: User login

⇒ The data screen **0.3 Access** opens.

2. Select the user from the drop-down menu **2** in the data screen **0.3 Access**.

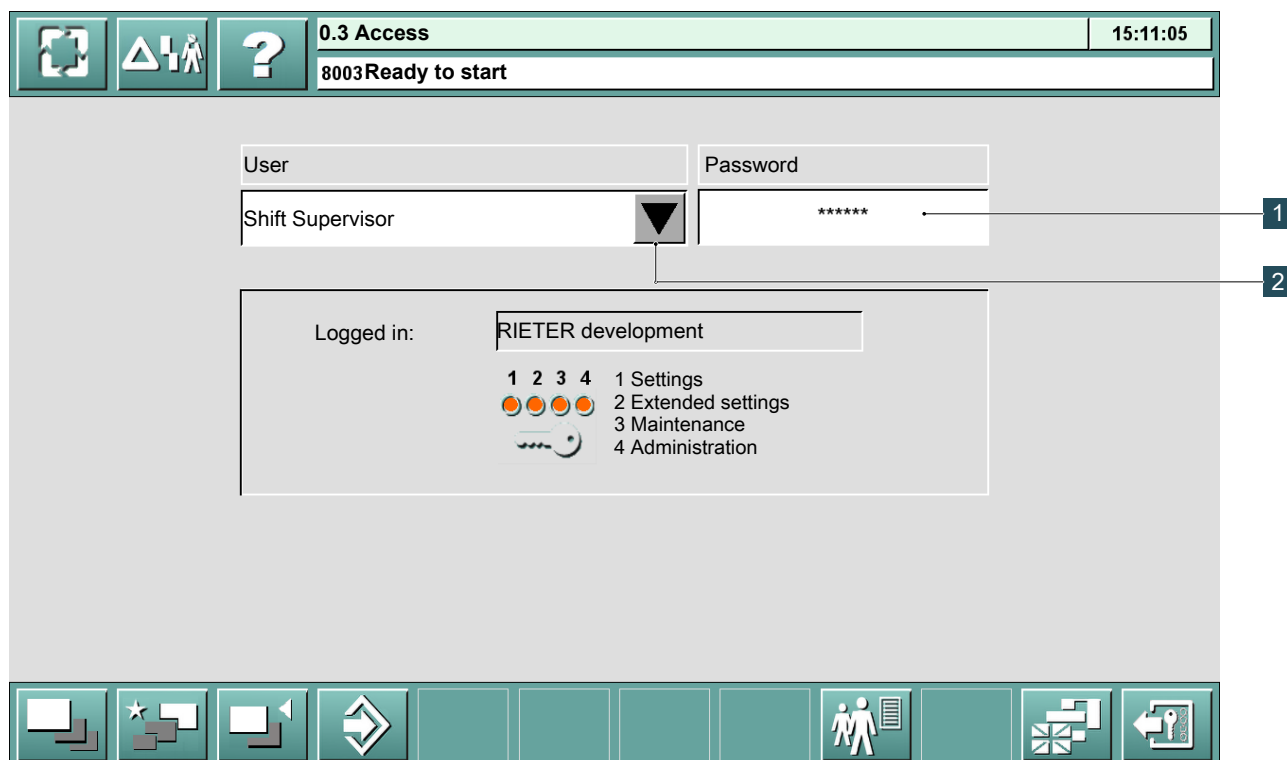


Figure 74: Data screen 0.3 Access

3. Tap the field **1**.
 - ⇒ A text box shows.
4. Enter the password in the text box.
 - ⇒ The entered password is shown as asterisks for the protection of the password.
 - ⇒ The authorization level is shown in color on the user login key.
 - ⇒ The user can change the parameter values and the settings.

Result The user login is done.

7.4.2.2 Doing the User Logout

1. Tap the user login key.



Figure 75: User login key

⇒ The data screen **0.3 Access** opens.

2. Tap the user logout key in the data screen **0.3 Access**.



Figure 76: User logout key

- ⇒ Access rights are not shown on the user login key.
- ⇒ The parameter values and the settings are not possible to be changed.

Result The user logout is done.

7.4.2.3 Making a User Account

The operator can make user accounts with different access rights to the system. The operator can keep more than 1 user account with different access rights. To make a user account, the operator must log in as Administrator.

1. Tap the user administration key in the data screen **0.3 Access**.
 - ⇒ The data screen **0.4 User Administration** opens.
2. Tap the touch key 3 in the data screen **0.4 User Administration**.

Figure 77: Data screen 0.4 User Administration

3. Enter the username in the field **User name** **1**.
4. Enter the password in the field **Password (4..8 char)** **2**.
5. Enter the password again in the field **Verify password** **4**.

6. Select the authorization levels in the field **5**.
⇒ More than 1 authorization level is permitted.
7. If necessary, cancel the entries and the selections.
8. Confirm the entries and the selections.

Result A user account is made.

7.4.2.4 Editing or Deleting the User Account

To edit or delete the user account, the operator must log in as Administrator.

1. Tap the user administration key in the data screen **0.3 Access**.
⇒ The data screen **0.4 User Administration** opens.
2. Select the target user account with the keys **1** in the data screen **0.4 User Administration**.

Figure 78: Data screen 0.4 User Administration

3. Tap the key **2** to edit the user account.
⇒ The data screen **0.4.1 Edit User** opens.
4. Edit the user account in the data screen **0.4.1 Edit User**.

The screenshot shows the '0.4.1 Edit User' screen. At the top, there is a header bar with a green background containing three icons (a square with a circle, a triangle with a circle, and a question mark) and the text '0.4.1 Edit User' and '15:11:29'. Below the header, there is a status bar with the text '8003 Ready to start'. The main area contains several input fields and checkboxes:

- User name: [Text field]
- Shift Supervisor: [Text field]
- Autom. logoff: [Text field] ☒
- Log off in: [Text field] 10 min
- Password expires automatically: [Text field] ☐
- Validity duration: [Text field] 0 day(s)

At the bottom, there is a navigation bar with several icons: a square with a circle, a triangle with a circle, a question mark, a square with a circle, a square with a circle, a square with a circle, a square with a circle, a square with a circle, a square with a circle, and a square with a circle.

Figure 79: Data screen 0.4.1 Edit User

5. Tap the previous screen key to close the data screen **0.4.1 Edit User**.
6. Tap the key **3** to delete the user account.
 - ⇒ The user account is deleted after the confirmation.

Result The user account is edited or deleted.

7.4.2.5 Using the Help Function

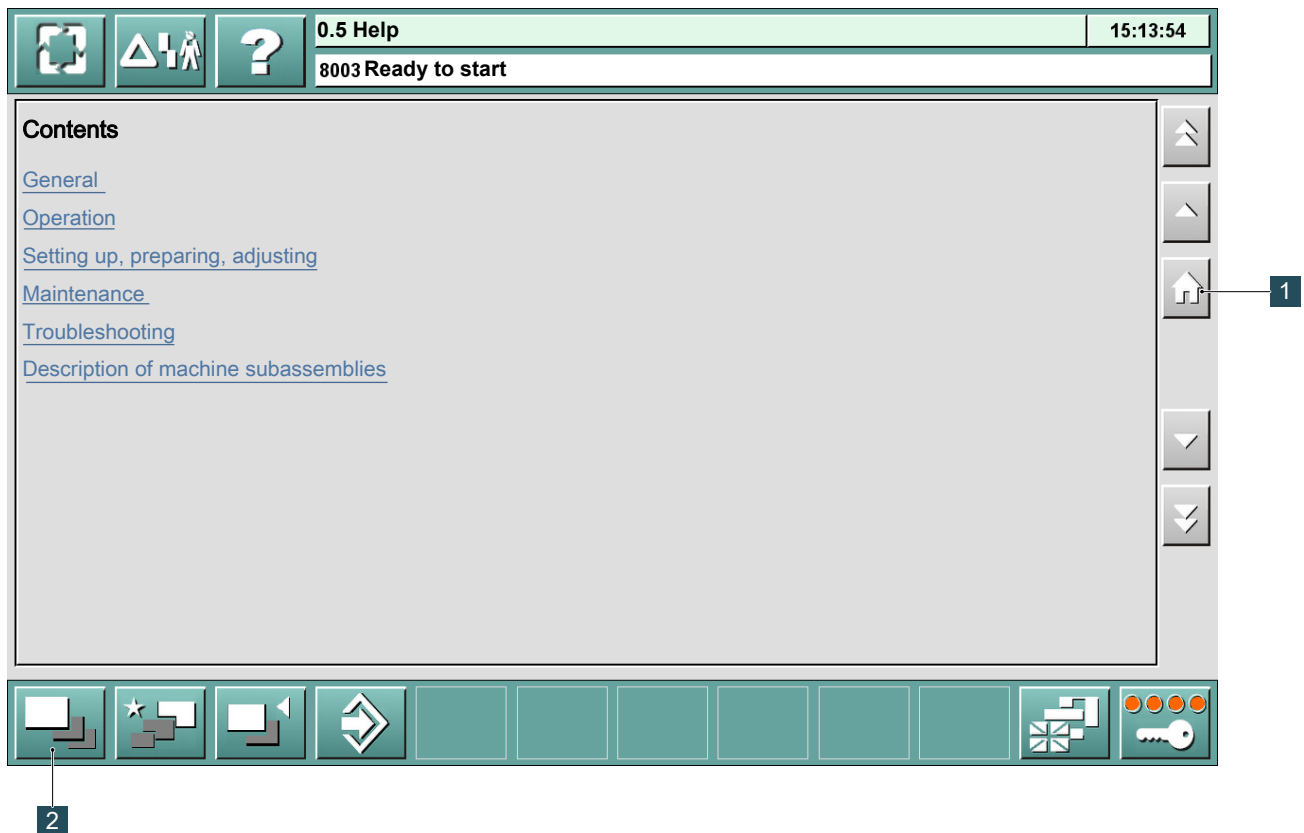


Figure 80: Data screen 0.5 Help

If a fault message shows, the user can tap the help key to go to the data screen **0.5 Help**. The related troubleshooting message is shown in the data screen of help.

If no fault occurs, the user can tap the help key to go to the data screen **0.5 Help**. The user has the access to the operation manual in the data screen of help.

The user can tap the home key **1** to go back to the data screen of help.

The user can tap the overview key **2** to go back to the data screen of fault message.

7.4.3 Doing a Cold Restart

A cold restart is done before the start of the setup procedure.

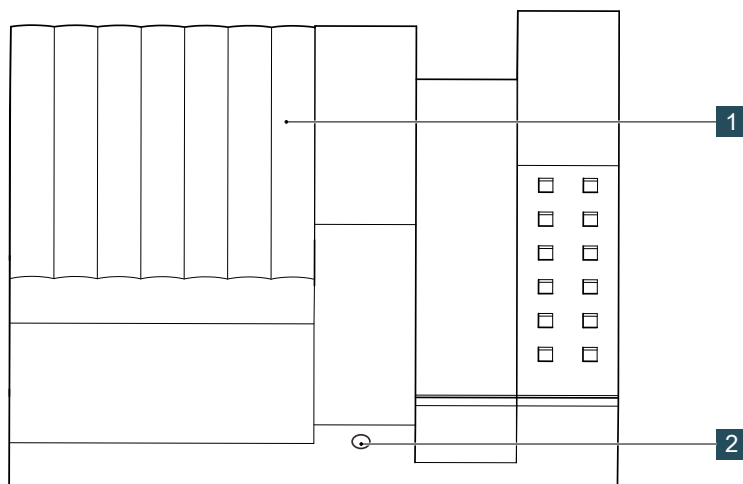


Figure 81: Cold restart

1. Set the main switch to the position ON.
2. Wait until the system is started.
⇒ The visualization is shown.
3. Open the door of the control console.
4. Push the reset button **2** on the CPU module **1** with an object (paper clip).
5. Wait until the visualization shows the initial screen of the cold-start, which takes some minutes.
6. Close the door of the control console.

Result The cold restart is completed.

7.4.4 Setup Procedure

The setup procedure makes sure that the machine is prepared to make production.

7.4.4.1 Setup Start

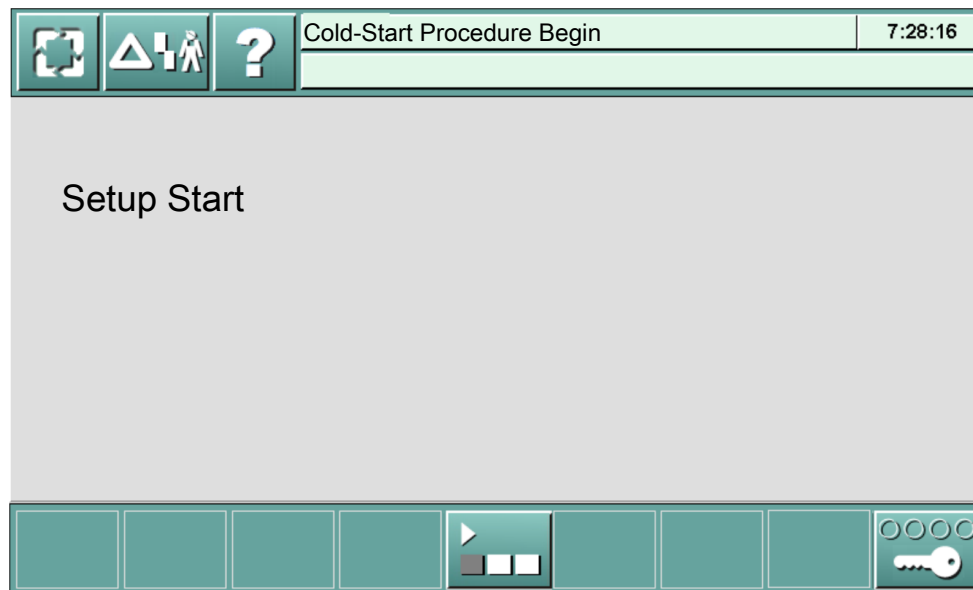


Figure 82: Setup Start

This data screen shows that the setup procedure starts.

7.4.4.2 Selecting the Language

Language can be selected in the data screen 3.1.3.

The default language is English. Tap the [Language] touch key to select the correct language.

7.4.4.3 Entering the Password

1. Tap the [Access Rights] touch key.
2. Select **Administrator** in the **User**.
3. Enter the default password of the administrator: admin.
⇒ The authorization level of the logged-in user is shown by the number of lights.

Result The password is entered.

7.4.4.4 Changing the Password

1. Tap the [User Administration] touch key.
2. Enter the new password.
3. Enter the new password again.
4. Select the authorization level.
5. Tap the [Confirmation] touch key to keep the change.

6. Tap the [Previous data screen] touch key.

Result The password is changed.

7.4.4.5 Machine Configuration 1

The data screen shows the machine number and the customer name.

7.4.4.6 Importing the Data

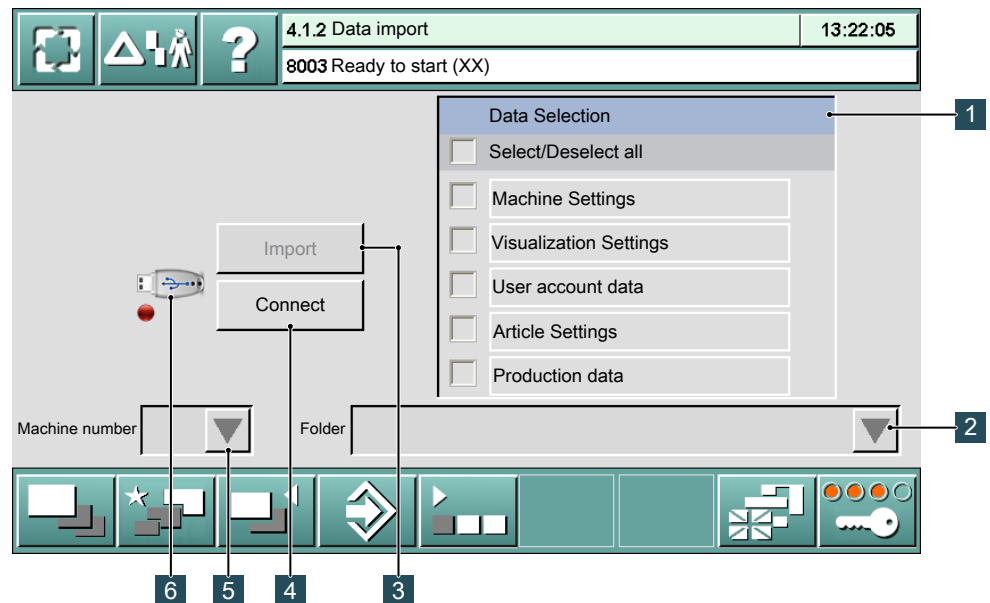


Figure 83: Data import

1	Data selection	2	Directory
3	Key Import	4	Key Connect
5	Status indicator	6	Machine number

1. The user connects the USB flash drive to the USB port.
2. The user taps the key **4** to build connection to the inserted USB storage device.
3. The user examines the status indicator **6**. (Red shows that the USB storage device is not engaged, read, or recognized. Green shows that the USB storage device is recognized.)
4. The user selects the directory of the USB storage device for the import from the drop-down menu **2**.
5. If there is a creation of data records with the same customer name on the USB storage device, the user can select the machine from which the data is to be imported from the drop-down menu **5**.
6. The user selects the data to be imported in the field **1**.

7. The user taps the key **3** to start the import of the selected data.

Result The data is imported to the machine.

7.4.4.7 Machine Configuration 2

The data screen shows the basic machine information:

- Construction year
- Serial number
- Operation time

7.4.4.8 Network Configuration

The screenshot shows the '3.3.1 Network Configuration' screen. At the top, there is a status bar with a green header '3.3.1 Network Configuration' and a timestamp '13:22:27'. Below the header, a white box displays '8003 Ready to start (XX)'. The main area contains four configuration fields:

- SPIDERweb communication:** A checkbox that is currently unchecked.
- Machine subnet mask:** A field with four input boxes containing the values 255, 255, 0, and 0.
- Machine IP address:** A field with four input boxes containing the values 172, 27, 2, and 1.
- SPIDERweb Host IP address:** A field with four input boxes containing the values 172, 27, 1, and 1.

At the bottom of the screen, there is a navigation bar with several icons, including a key icon on the far right.

Figure 84: Network configuration

The SPIDERweb is a data collection system for production and quality data of Rieter machines.

The **Machine subnet mask** and IP addresses allow the machine to be integrated into an Ethernet network.

The user sets in the field if the SPIDERweb communicates with the machines.

Notice To guarantee the correct functioning, the first and the second block of **Machine IP address** and **SPIDERweb Host IP address** must be the same. The fourth block can be selected freely from 1 to 250.

The first block of **Machine subnet mask** must be "255".

7.4.4.9 Date and Time

Date and time can be set in the data screen 3.1.1.

Time Format

The time format can be selected from the 2 formats that follow:

- 12 hours
- 24 hours

Time/Date

Time, date, and week can be set.

Time System

Time system can be selected from the 2 systems that follow:

- Daylight saving time
- Usual time

7.4.4.10 Disabling One-Side Bale Groups

The user can set the machine work in 1 side of the bale groups in the data screen 3.2.7.

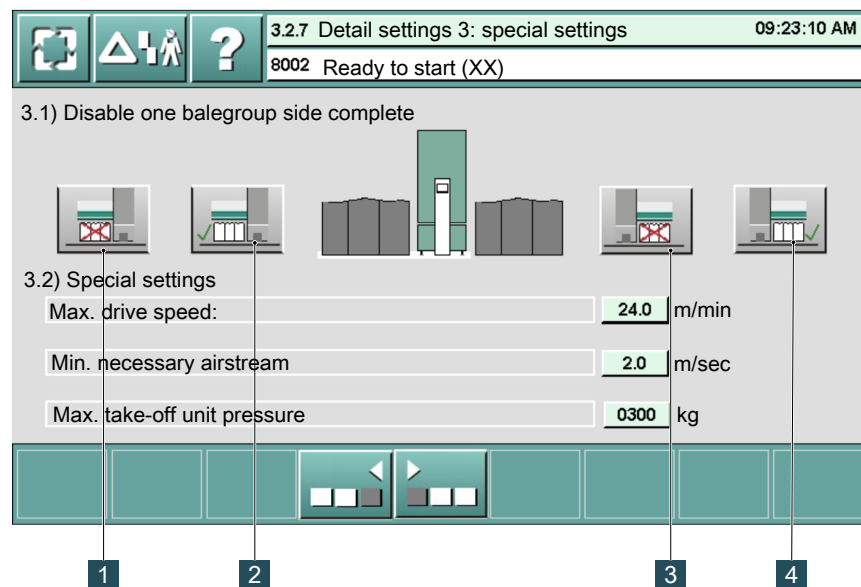


Figure 85: Data screen one-side bale groups

1	Side A off	2	Side A on
3	Side B off	4	Side B on

Side A Off

The take-off unit is not permitted to take off on side A.

Side A On

The take-off unit is permitted to take off on side A.

Side B Off

The take-off unit is not permitted to take off on side B.

Side B On

The take-off unit is permitted to take off on side B.

**Other special settings
on data screen 3.2.7****Maximum Drive Speed**

The maximum drive speed is the maximum speed that the take-off unit goes to another position. For instance the take-off unit goes to another bale group.

The maximum movement speed of the chassis can be set.

Range	6 – 30 m/min
Default	24 m/min

Minimum Necessary Air Stream

The minimum necessary air stream speed for safe production can be set. The machine stops if the air stream speed is lower than the minimum necessary air stream.

Range	2 – 32 m/sec.
Default	8 m/sec.

Maximum Take-off Unit Pressure

The maximum permitted take-off unit pressure for the machine to monitor can be set. The machine stops if the take-off unit pressure is more than the maximum take-off unit pressure.

Range	100 – 450 kg
Default	350 kg

7.4.4.11 Initializing the Safety Modules

The safety modules can be initialized in the data screen 4.3.4.

Initialization of the safety modules makes sure that all safety modules operate correctly in production. The user needs to initialize the safety modules only once after a cold start of the CPU or the installation.

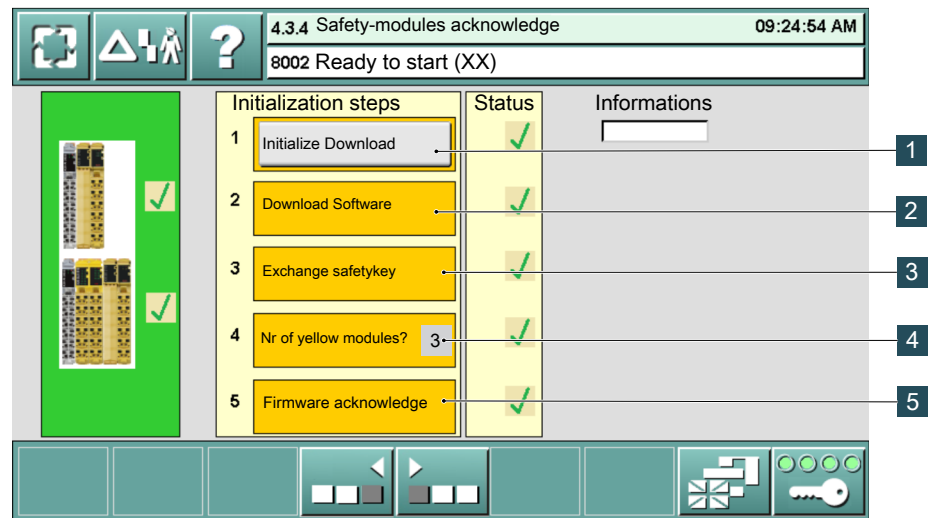


Figure 86: Safety modules initialization

1. Tap the touch key **1**.
⇒ When the download initialization is completed, the check mark shows and the touch key **2** shows.
2. Tap the touch key **2**.
⇒ The check mark shows and the touch key **3** shows.
3. Tap the touch key **3**.
⇒ The touch key **4** shows.
4. Tap the touch key **4** (the small touch key with the number).
⇒ The number at the touch key **4** changes to “2”.
5. Tap the touch key **4** again.
⇒ The number at the touch key **4** changes to “1”.
6. Tap the touch key **4** again.
⇒ The check mark shows and the touch key **5** shows.
7. Tap the touch key **5**.
⇒ The check mark shows.
⇒ When the 5 check marks show, the left field of the data screen is green as shown in the figure above.

Result The safety modules are initialized.

7.4.4.12 Setting the Tower

The tower can be set in the data screen 4.3.2.

Only one of the 2 sides (side A and side B) must be set after software updates. Here, setting the tower on side A and setting the tower on side B are all given. You can select one of the 2 procedures to set the tower.

- Side A**
1. Tap the [Slowly Counterclockwise Turn] touch key.
⇒ A green rectangle is around the [Slowly Counterclockwise Turn] touch key.
 2. Push and hold the start button on the control console until the tower moves to the position 0°.
⇒ The tower moves to the position 0°.
 3. Tap the [Confirm Side A] touch key.
⇒ A green rectangle is around the [Confirm Side A] touch key.
 4. Push the start button on the control console.

Result The side A of the tower is set.

- Side B**
1. Tap the [Slowly Clockwise Turn] touch key to turn the tower to position 180°.
⇒ A green rectangle is around the [Slowly Clockwise Turn] touch key.
 2. Push and hold the start button on the control console until the tower moves to the position 180°.
⇒ The tower moves to the position 180°.
 3. Tap the [Confirm Side B] touch key.
⇒ A green rectangle is around the [Confirm Side B] touch key.
 4. Push the start button on the control console.

Result The side B of the tower is set.

7.4.4.13 Setting the Take-off Unit

The lowest 0 position and the movement range of the take-off unit can be set in the data screen 4.3.1.

Setting the Lowest 0 Position of the Take-off Unit

The lowest 0 position must always be set after software updates or the lifting drive motor is replaced.



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Up] touch key or [Quickly Down] touch key.

1. Tap the [Slowly Down] touch key or the [Quickly Down] touch key.
⇒ A green rectangle is around the [Slowly Down] touch key or the [Quickly Down] touch key.

2. Push and hold the start button on the control console until the take-off unit moves to the lowest position.
 - ⇒ The take-off unit moves to the lowest 0 position.
3. Tap the [Confirm Lowest 0 Position] touch key.
 - ⇒ A green rectangle is around the [Confirm Lowest 0 Position] touch key.
4. Push the start button.
 - ⇒ The lowest 0 position is set.

Setting the Movement Range of the Take-off Unit

The take-off unit movement range must be set after software update.

Top Limit There are 2 methods to set the top limit of the take-off unit.

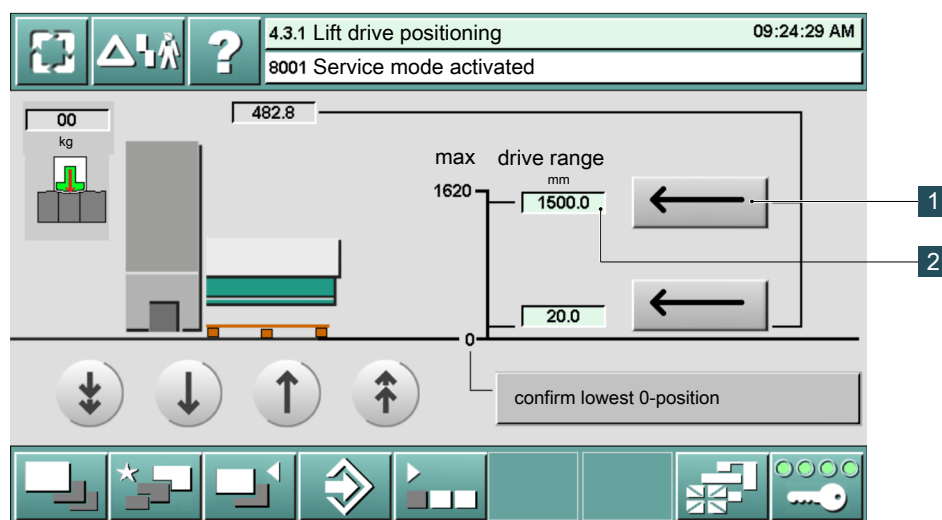


Figure 87: Top Limit

– Method 1

Prerequisites Make sure that the criteria are obeyed:

- ✓ The lowest 0 position is set.



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Up] touch key or [Quickly Down] touch key.

1. Tap the [Slowly Up] touch key or the [Quickly Up] touch key.
 - ⇒ A green rectangle is around the [Slowly Up] touch key or the [Quickly Up] touch key.

2. Push and hold the start button on the control console until the take-off unit moves to the target position of the top limit.
⇒ The take-off unit moves to the target position of the top limit.
3. Tap the [Position Confirmation] touch key **1**.
⇒ A green rectangle is around the [Position Confirmation] touch key.
4. Push the start button on the control console.
⇒ The top limit position is set.

– Method 2

Range	600 – 1620 mm
Default	1400 mm

Prerequisites Make sure that the criteria are obeyed:

- ✓ The lowest 0 position is set.
1. Enter the top limit value in the value field **2** with the above value.
⇒ The top limit position is set.

Lower Limit The lower limit is the lowest position that the take-off unit takes off the bale groups.

There are 2 methods to set the lower limit of the take-off unit.

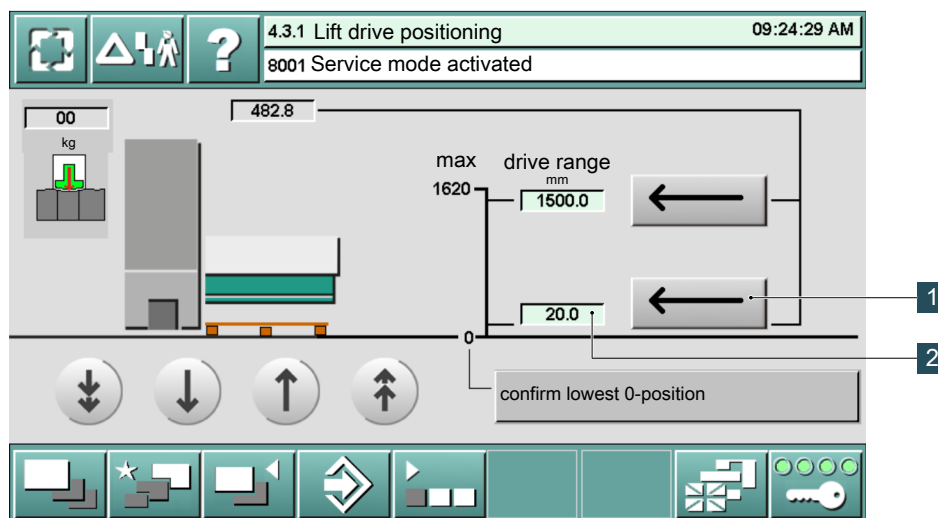


Figure 88: Lower Limit

– Method 1

Prerequisites Make sure that the criteria are obeyed:

- ✓ The lowest 0 position is set.

**NOTICE****Fast movement!**

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Up] touch key or [Quickly Down] touch key.

1. Tap the [Slowly Down] touch key or the [Quickly Down] touch key.
 - ⇒ A green rectangle is around the [Slowly Down] touch key or the [Quickly Down] touch key.
2. Push and hold the start button on the control console until the take-off unit moves to the target position of the lower limit.
 - ⇒ The take-off unit moves to the target position of the lower limit.
3. Tap the [Position Confirmation] touch key **1**.
 - ⇒ A green rectangle is around the [Position Confirmation] touch key.
4. Push the start button on the control console.
 - ⇒ The lower limit position is set.

– Method 2

Range	0 – 400 mm
Default	20 mm

Prerequisites Make sure that the criteria are obeyed:

- ✓ The lowest 0 position is set.
1. Enter the lower limit value in the value field **2** with the above value.
 - ⇒ The lower limit position is set.

Result The take-off unit is set.

7.4.4.14 Setting the Chassis

The information that follows shows how to set the control parameters of the chassis in the data screen 4.3.3.

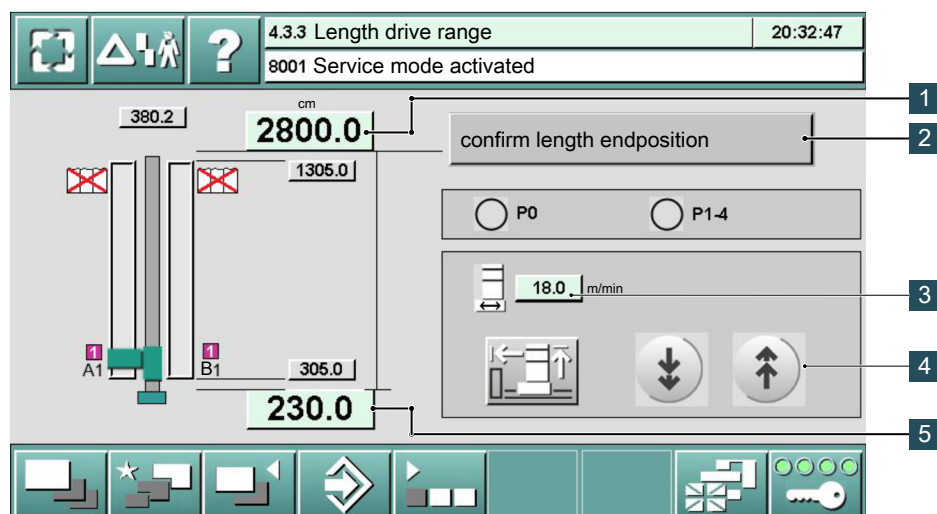


Figure 89: Chassis setting

Chassis Movement Speed

Chassis Movement Speed	
Range	4 – 24 m/min
Default	8 m/min

1. Tap the value field **3**.
2. Enter the value in the field **3**.
⇒ The chassis movement speed is set.

Chassis Start Point

Chassis Start Point	
Range	2.3 – 8 m
Default	2.4 m

1. Tap the start point field **5**.
2. Enter the value in the field **5**.
⇒ The chassis start point is set.

Chassis Finish Point

Range	6.0 – 75.0 m
Default	25 m

- Method 1**
1. Tap the finish point field **1**.
 2. Enter the value in the field **1**.
 3. Tap the [Fast Forward] touch key **4** to move the chassis to the maximum permitted finish point **1**.

- ⇒ A green rectangle is around the [Fast Forward] touch key.
4. Push and hold the start button on the control console until the chassis moves to the maximum permitted finish point.
 5. Check if the chassis is at the end of the rails.
 6. If not, go back to the step 1 to adjust the finish point.
 7. Tap the [Confirm Length End Position] touch key **2**.

⇒ A green rectangle is around the [Confirm Length End Position] touch key **2**.
 8. Push the start button on the control console.

⇒ The chassis finish point is set.

Result The chassis is set.

7.4.4.15 Machine

The machine can be set in the data screen 3.2.2.

Figure 90: Machine

Number of Bale Groups on Each Side

The number of the bale groups on each side of the machine can be set.

Range	1 – 3
Default	1

Number of Assortments

The number of bale group assortments can be set.

Range	1 – 3
Default	1

Warning Message “Bale Group Almost Taken Off” When the Height Is Lower

The remaining height value of the bale group for the machine to start to give warning messages can be set. When the bale group height is less than the value, the machine gives warning messages that the bale group is almost taken off. The UNIconrol also gives the warning messages.

Range	0 – 500 mm
Default	220 mm

Scan After Non-Operation Time

The non-operation time of a bale group for the take-off unit to start to rescan the bale group can be set. If the time that the machine does not take off a bale group is more than the non-operation time, the take-off unit starts to rescan the bale group automatically.

Range	10 – 2 880 min
Default	300 min

There is an exception for this non-operation time. If the remaining bale-group height is less than 300 mm, then the take-off unit will not rescan the bale group.

Assortment Clearing Time

The time of each assortment to be cleaned can be set. Before the machine takes off the next assortments, the tufts of the previous assortment must be cleaned from all pipes. The clearing time is related to the length of all the pipes.

Range	1 – 120 sec
Default	4 sec

7.4.4.16 Assortment Feed

The assortment feed can be set in the data screen 3.2.3.

The assortment for each bale group can be set.

Range	1 – 3
-------	-------

7.4.4.17 Bale Groups

The bale groups can be set in the data screen 2.1.

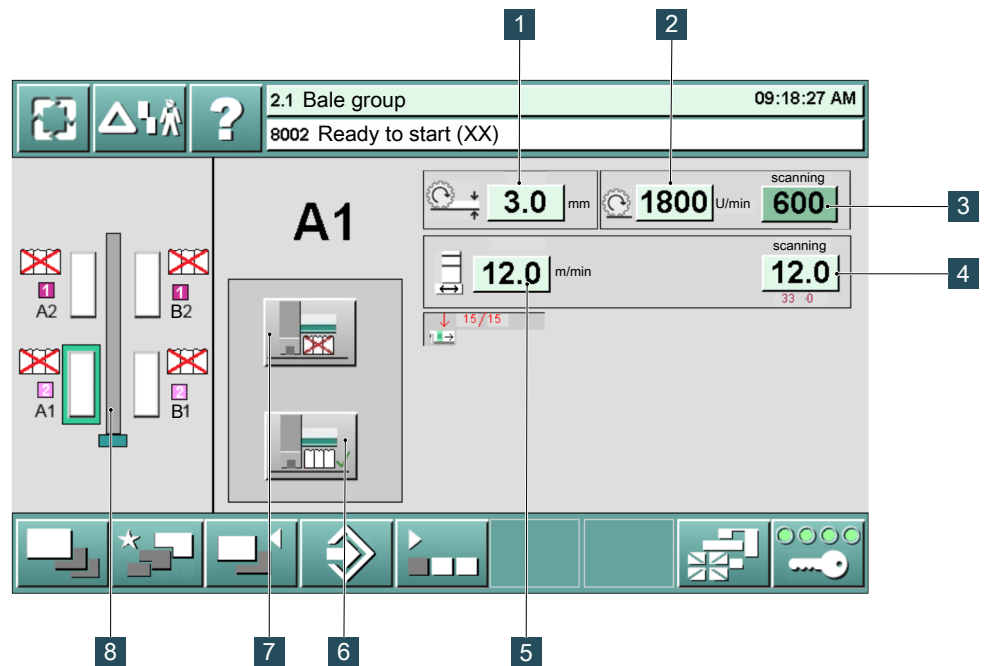


Figure 91: Scanning and take-off adjustments

1	Take-off depth	2	Take-off roller speed
3	The scanning speed of the take-off roller	4	The scanning speed of the chassis
5	Chassis movement speed	6	Bale group on
7	Bale group off	8	Bale group selection

Take-off Depth

A higher take-off depth causes larger tufts and higher production rate.

Range	0.6 – 12 mm
Default	3 mm

Take-off Roller Speed

A higher speed of the take-off roller causes higher production rate and smaller tufts.

Range	1200 – 2200 rpm
Default	1 800 rpm

Scanning Speed of the Take-off Roller

The turn speed of the take-off roller when the take-off unit does a scan for the bale group can be set.

Range	300 – 2200 rpm
Default	1 800 rpm

Scanning Speed of the Chassis

The chassis movement speed when the take-off unit does a scan for the bale group can be set.

Range	6 – 24 m/min
Default	12 m/min

Chassis Movement Speed

A higher movement speed of the chassis causes higher production rate and larger tufts. The chassis movement speed must be less than the maximum drive speed in the data screen 3.2.7.

Range	6 – 24 m/min
Default	15 m/min

Bale Group On

The user sets the selected bale group to be taken off with the touch key **6**.

When the user taps the touch key **6**, a green frame shows around the touch key **6**. Then the user pushes the start button to start the adjustment.

Bale Group Off

The user sets the selected bale group not to be taken off with the touch key **7**.

The user uses the touch key **7** in the same procedure of the touch key **6**.

Bale Group Selection

A bale group can be selected to show the production information.

When the user taps the bale group in the field **8**, the production adjustments of the selected bale group show on the data screen 2.1. Then the user can set the production adjustments of the selected bale group.

7.4.4.18 Bale Profiling

The bale profiling can be set in the data screen 2.2.

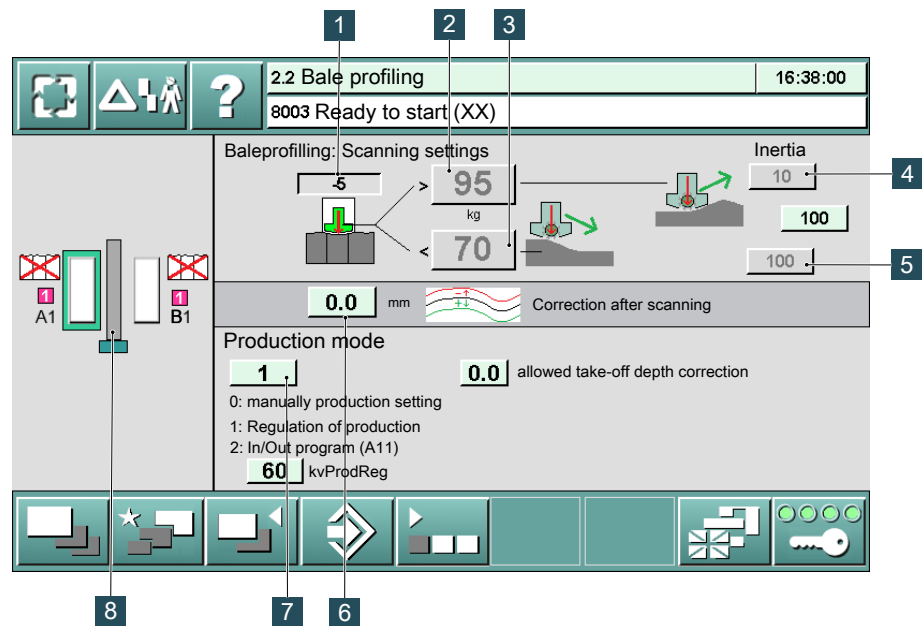


Figure 92: Adjustments of data screen scanning

1 Take-off unit pressure	2 Limit value of the moving-up pressure
3 Threshold value of the moving-down pressure	4 Moving-up sensitivity
5 Moving-down sensitivity	6 Correction after scanning
7 Production mode	8 Bale group selection

Take-off Unit Pressure

The take-off unit pressure shows the pressure that the take-off unit pushes onto the bale group currently.

Limit Value of the Moving-up Pressure

If the take-off unit pressure is more than the limit value, then the take-off unit moves up.

Range	15 – 100 kg
Default	35 kg

When the user taps the field **2**, a numeric keypad shows. The user can set the adjustment with the numeric keypad.

Moving-down Pressure Threshold Value

If the take-off unit pressure is less than the threshold value, then the take-off unit moves down.

Range	10 – 95 kg
Default	30 kg

Moving-up Sensitivity

The lower the sensitivity is, the quicker the take-off unit moves up.

Range	5 – 50
Default	10

Moving-down Sensitivity

The lower the sensitivity is, the quicker the take-off unit moves down.

Range	15 – 300
Default	100

Correction after Scanning

The correction value for production after the take-off unit scans the bale groups can be set. If the user uses the positive correction value, the take-off depth is higher. If the user uses the negative correction value, the take-off depth is lower. For example, if you set +10 mm, then the take-off unit will take off 10 mm more into the bale groups after it scans.

When the take-off unit takes off the bale group too much after the take-off unit does a scan for the bale group, the user can set the correction value to a negative value to decrease the take-off depth.

Range	-40 – 40 mm
Default	0

Production Mode

The production mode of the machine can be selected.

Production mode 0 (Default)	Manual production adjustment
Production mode 1	Regulation of production
Production mode 2	The In/Out program (A11) refers to Stop/Go ratio to automatically adjust production value.

Bale Group Selection

A bale group is selected to set the bale profiling of this bale group.

7.4.4.19 Bale Group Positions

The bale group positions can be set in the data screen 2.3.

- Method 1**
1. Move the chassis along the rails in the data screen 5.1.
 2. Tap the [Position Confirmation] touch key to set the position of each bale group.
⇒ A green rectangle is around the [Position Confirmation] touch key.
 3. Push the start button.

Result The position of each bale group is set.

Method 2

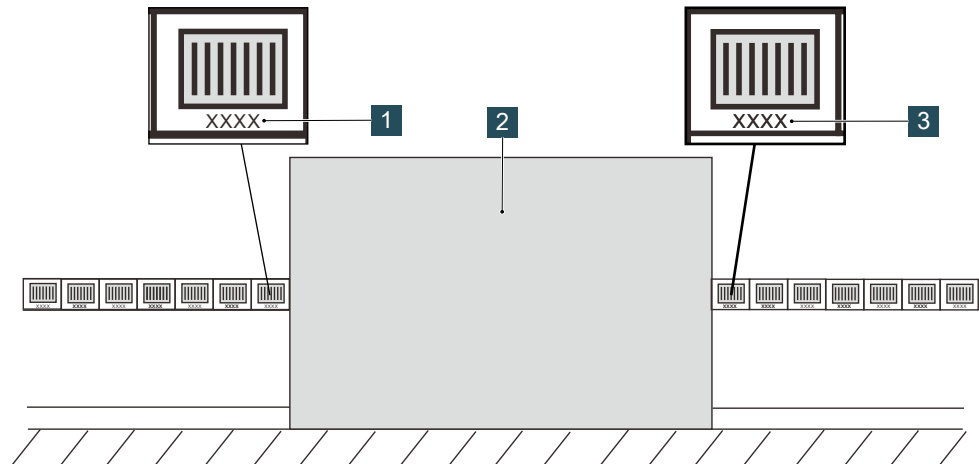


Figure 93: Barcode tape number

1. On the barcode tape, read the start position number **1** and the end position number **3** of each bale group **2** (the number on the barcode tape is the distance value with the unit of cm).
2. Enter the position numbers in the data screen 2.3.

Result The position of each bale group is set.

7.4.4.20 Production Division

The production division can be set in data screen 3.2.4.

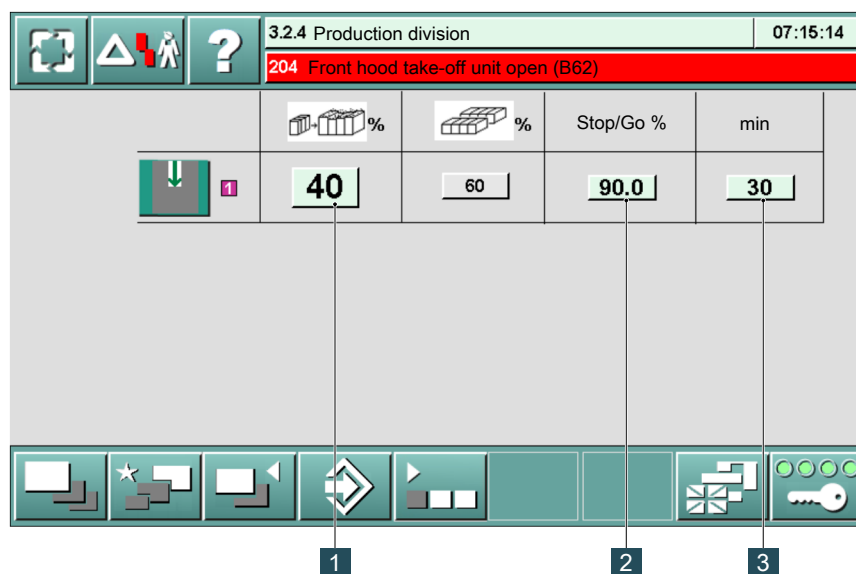


Figure 94: Production division

- | | | | |
|---|--|---|---------|
| 1 | New production percentage | 2 | Stop/Go |
| 3 | Timebase for calculating the Stop/Go ratio | | |

New Production Percentage

The percentage of the assortment production that goes into each UNImix can be set. The other percentage is the value for other bale groups.

Range	10 – 80
Default	40

Stop/Go

The Stop/Go ratio can be set.

Range	50 – 90
Default	90

The best Stop/Go ratio is 80%. If the Stop/Go ratio is higher than 80%, the take-off unit is necessary to take off larger quantity. If the Stop/Go ratio is lower than 80%, the take-off unit is necessary to take off smaller production quantity.

When the Stop/Go ratio is 10% higher than the value that is set, an alarm shows on the data screen **Overview**. The orange boxes show around the related UNImix and bale groups as warnings.

Timebase for Calculating the Stop/Go Ratio

The time range is set in which the Stop/Go ratio is calculated by the production regulator to adjust the production value.

The Stop/Go ratio is calculated by the production regulator in a time interval. The time interval can be set as follows for the Stop/Go ratio to adjust the production value.

Time Range	5 – 60
Default	30

7.4.4.21 Scanning-Start Point

The scanning-start point can be set in the data screen 3.2.5.

The start point for the take-off unit to move down to scan the bale group can be set.

Range	30 – 400 cm
Default	40 cm

7.4.4.22 Take-off Roller

The take-off roller is set in the data screen 3.2.6.

Turning Direction of the Take-off Roller

The take-off roller direction is selected between the 2 procedures that follow:

0 (Default)	The take-off roller turns in different directions when the chassis moves forward and rearward.
1	The take-off roller turns in the same directions when the chassis moves forward and rearward. If the take-off roller turns in the same direction procedure, the production is the same in both directions.

No-Interruption Distance of the Take-off Roller

The distance at the ends of a bale group for the take-off unit to continue the take-off work can be set. The take-off unit continues the work to the end of a bale group, although the assortment is not needed by UNImix.

Range	50 – 2500 cm
Default	300 cm

7.4.4.23 Setup End

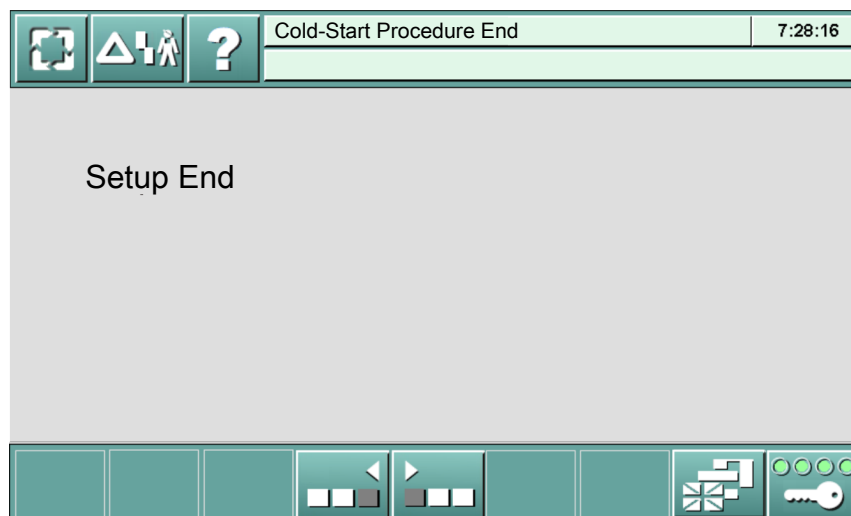


Figure 95: Setup End

This data screen shows that the setup procedure is completed.

7.4.5 Setting the Penetration Factor of the Take-off Roller

Introduction A penetration factor is the distance between the wobble disk and the floor grid. The higher the penetration factor, the more depth the wobble disk goes into the bales. The penetration factor of the take-off roller has effect on the dimensions of the tufts. Higher penetration factor causes larger tufts and higher production rate.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set the OFF position and padlocked.
- 1. Open the 2 side doors and the front door.
- 2. Loosen the 4 screws **2**.

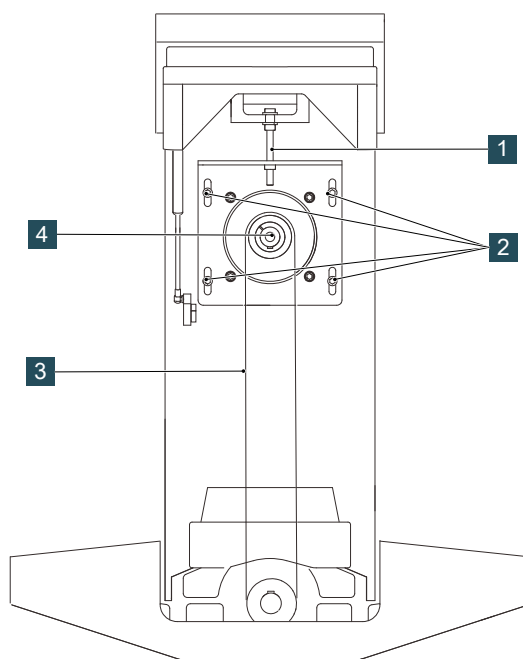


Figure 96: Toothed belt

3. Loosen the screw **1** to lower the toothed belt disk **4** until the toothed belt **3** is loose.
4. Loosen the 4 screws **5**.

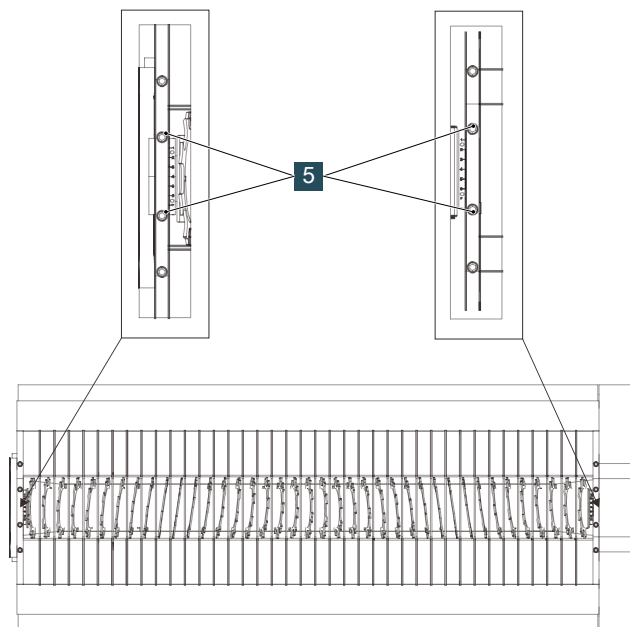


Figure 97: Screws

5. Put a screwdriver into the holes **8** in the scale disk **6**.

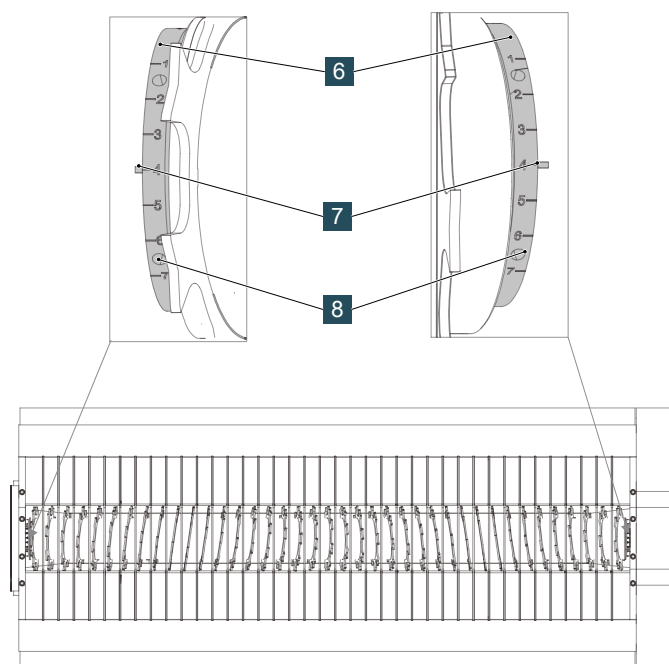


Figure 98: Scale disk

6. Turn the scale disk to adjust the penetration factor. Range: 0 – 8 mm, default: 4 mm.
7. Let the same number align to the white mark **7** on the 2 sides.
8. Tighten the 4 screws **5**.
9. Adjust the screw **1** to make sure that the frequency of the toothed belt tension is 50 – 55 Hz.
10. Tighten the 4 screws **2**.
11. Close the 2 side doors and the front door.

Result The penetration factor of the take-off roller is set.

7.5 Production Modes

This chapter shows 3 different production modes that follow:

- Production mode 0
- Production mode 1
- Production mode 2

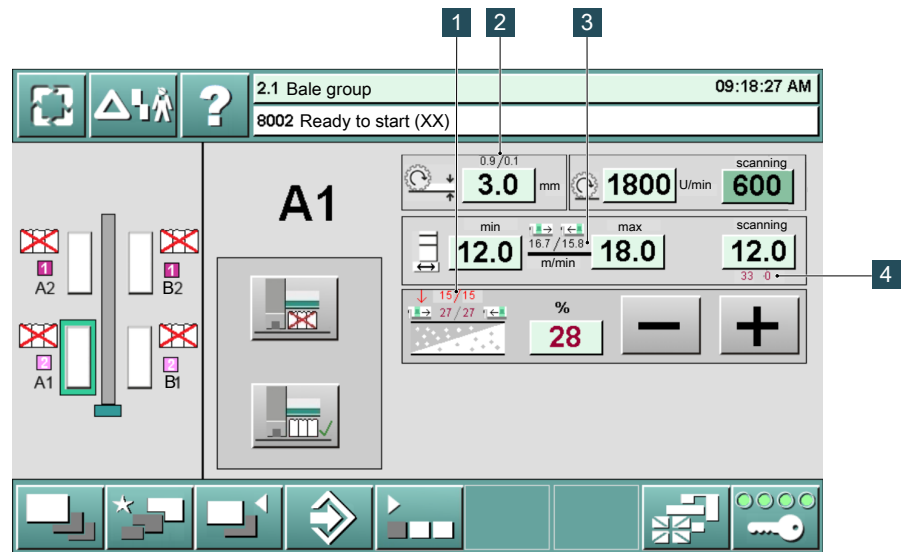


Figure 99: Information Format

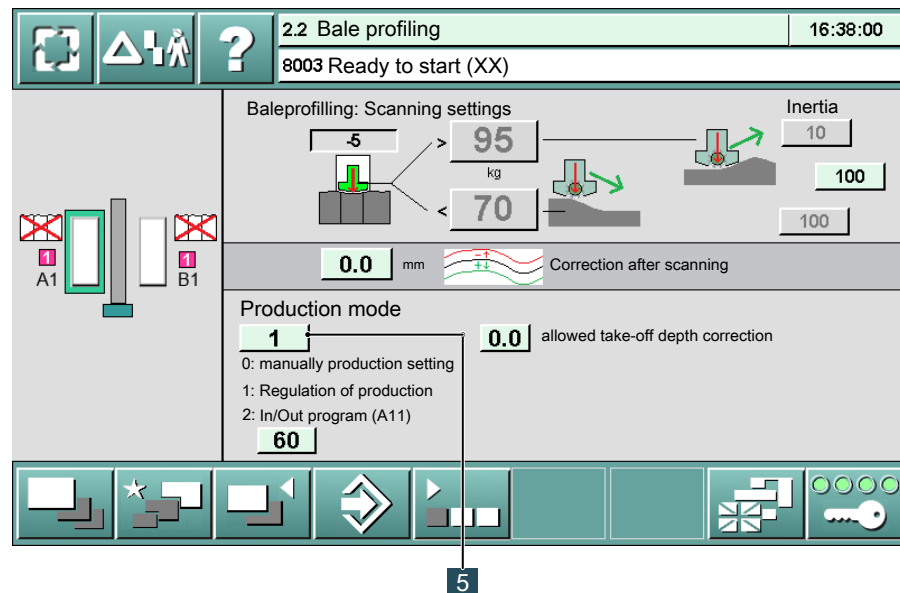


Figure 100: Production modes

The Value Field 1, 2, 3, and 4

The machine can have different production rates when the chassis moves in different directions. Thus, the same field 1, 2, 3, and 4 shows the different value in different directions.

Both values in the value field 1 show the power values compared with the maximum power value of the take-off motor in percentage.

Production Mode 5

In different production modes, it is different to set in the data screen 2.1 Bale group and data screen 2.2 Bale profiling.

The table shows the different functions in different production modes.

Production Modes	Manual Production Status	Regulation of Production
Production mode 0	Yes	No
Production mode 1	No	Yes
Production mode 2	Yes	No

Adjusting Production

The take-off unit pressure can be used to adjust production.

If the take-off unit pressure is too high (approximately 60 kg), 1 of the following production settings must be changed.

- The take-off depth is too high.
- The penetration factor of the take-off roller is too low for the take-off depth.

Power Consumption

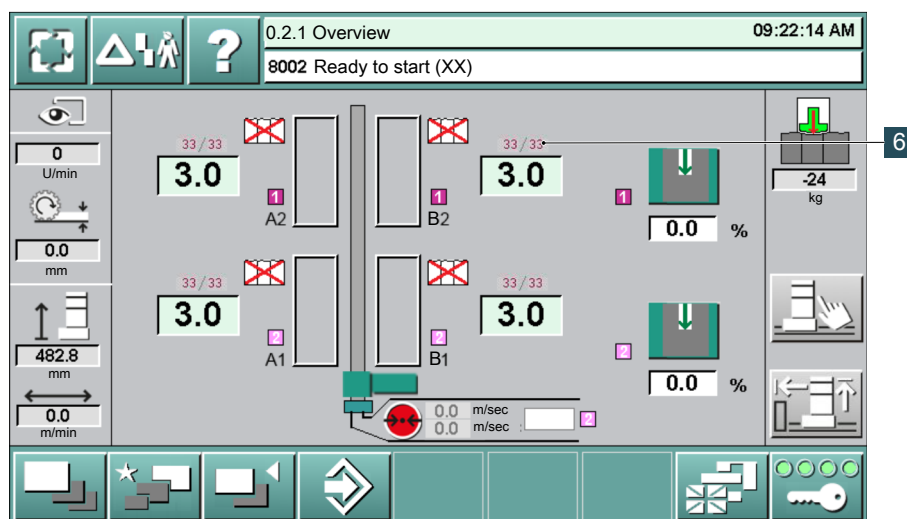


Figure 101: Power consumption

The power consumptions of the take-off roller drive **6** are shown in the data screen **Overview**.

7.5.1 Production Mode 0

The production mode 0 is the default production mode of the machine.

In production mode 0, the production parameters can be set manually.

See Bale Groups ▶ 114

7.5.2 Production Mode 1

The production mode 1 has an automatic production regulator. The regulator can adjust the power consumption of the take-off roller drive.

The power consumption correlates with the production quantity.

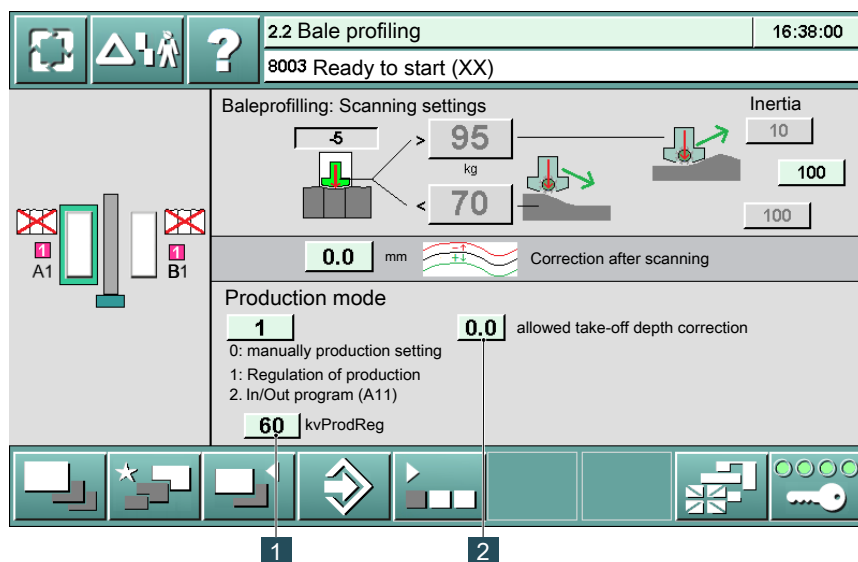


Figure 102: Production Mode 1

Automatic Production Regulator

The automatic production regulator can adjust the chassis movement speed and the take-off depth in a range that is set.

The fiber-tuft flow has an effect on the power consumption of the take-off roller drive. The automatic production regulator keeps the power consumption of the take-off roller drive constant.

The Percentage Factor of the Production Regulator

The higher the percentage factor **1** is, the faster the production regulator gives a result.

The tests of optimal percentage factor can be made in production.

Range	1 – 120 %
Default	60

The Take-off Depth Correction

After the value of the **allowed take-off depth correction** **2** is set, the production regulator can automatically adjust the take-off depth in a range.

Range	0 – 3 mm
-------	----------

Default

0

Example If the 2 requirements that follow are all met:

- The take-off depth is 4 mm.
- The take-off depth correction is 1 mm.

Then:

The production regulator adjusts the take-off depth in the range of 3 – 5 mm.

7.5.2.1 Setting the Bale Group

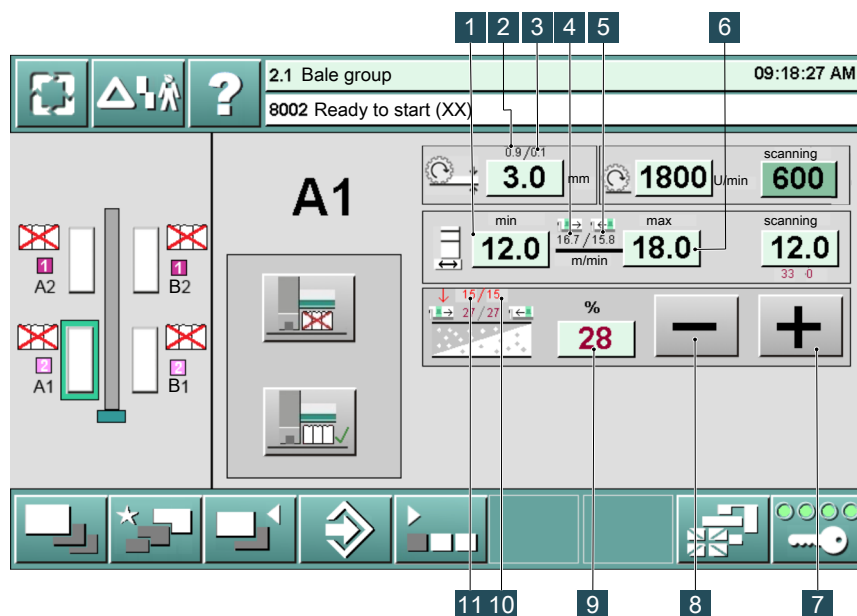


Figure 103: Bale group of production mode 1

1	The lower limit of the movement speed range on the chassis	2	Take-off depth automatic correction (forward)
3	Take-off depth automatic correction (rearward)	4	Actual chassis movement speed (forward)
5	Actual chassis movement speed (rearward)	6	The upper limit of the movement speed range on the chassis
7	[Increase] touch key	8	[Decrease] touch key
9	Production value	10	Take-off unit pressure (rearward)
11	Take-off unit pressure (forward)		

Speed Range of the Chassis Movement

A speed range can be set in which the production regulator can automatically adjust.

The table shows the lower limit of the speed range and the upper limit of the speed range.

	Lower Limit	Upper Limit
Range	6 – 24 m/min	15 – 24 m/min
Default	15 m/min	20 m/min

The table shows how the production regulator adjusts the take-off depth. This table refers to the actual movement speed on the chassis.

Actual Chassis Movement Speed	Production Regulator
More than 60 % of the speed range of the chassis movement	The regulator increases the take-off depth.
Less than 40 % of the speed range of the chassis movement	If the take-off depth correction is positive, the regulator decreases the take-off depth.

Example If the speed range of the chassis movement is 10 – 20 m/min, then:

Actual Chassis Movement Speed	Take-off Depth
< 14 m/min	Decrease
14 – 16 m/min	Stay constant
> 16 m/min	Increase

Importance:

Actual Chassis Movement Speed	Feedback	Procedure
Get the lower limit of the movement speed range on the chassis.	An orange warning boxes show around the related adjustments in the data screen 2.1	Adjust the take-off depth or the movement speed range on the chassis.
Get the upper limit of the movement speed range on the chassis.	Bale group and the data screen Overview .	

The Automatic Correction of the Take-off Depth

The production regulator adjusts correction value of the take-off depth automatically when the chassis moves.

Production Value

Usually, when the production value is 30 %, the production output is approximate 2 000 kg/h. But the types of raw materials and other causes have an effect on the production output. Thus, the tests of the optimal production value must be made in production.

The user must operate the machine in production mode 0. If the production output is good in production mode 0, the consumption value gives information to the production value **9** in production mode 1.

Production value = (The actual production power) / (The maximum power of the take-off roller drive) x 100%

The [Increase] touch key **7** can be tapped or the [Decrease] touch key **8** can be tapped to adjust the production value.

Take-off Unit Pressure (forward)

The value field **11** shows the average pressure in the take-off unit when the chassis moves forward.

Take-off Unit Pressure (rearward)

The value field **10** shows the average pressure in take-off unit before when the chassis moves rearward.

7.5.2.2 Power Consumption

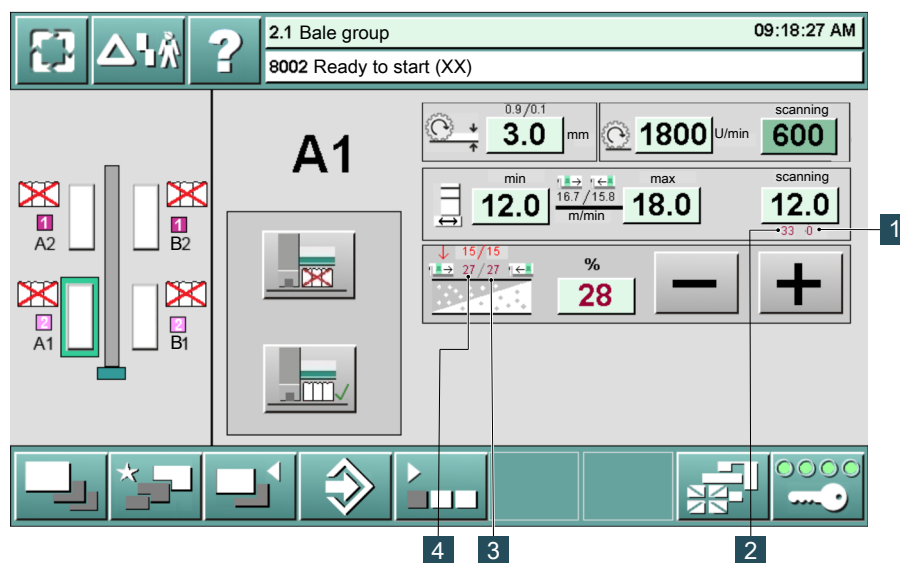


Figure 104: Power Consumption of Take-off Roller Drive

- | | |
|---|--|
| 1 The scanning power consumption of the take-off roller drive (rearward) | 2 The scanning power consumption of the take-off roller drive (forward) |
| 3 The take-off power consumption of the take-off roller drive (rearward) | 4 The take-off power consumption of the take-off roller drive (forward) |

The Scanning Power Consumption of the Take-off Roller Drive

The scanning power consumption of take-off roller can be referred to set the items that follow:

- The threshold value of the moving up pressure in the data screen 2.2
- The threshold value of the moving-down pressure in the data screen 2.2.

The 2 threshold values of the optimal pressure are optimal when the taking-off power of the take-off roller drive consumptions for the 2 directions are equal.

The Scanning Power Consumption of the Take-off Roller Drive (rearward)

This value is the average percentage of the power consumption on the take-off roller drive when the chassis moves rearward. This value is about the take-off scanning procedure before.

The Scanning Power Consumption of the Take-off Roller Drive (forward)

This value is the average percentage of power consumption on the take-off roller drive when the chassis moves forward. This value is about the take-off scanning procedure before.

The Take-off Power Consumption of Take-off Roller Drive (rearward)

This value is the average percentage of the power consumption on the take-off roller drive when the chassis moves rearward. This value is about the take-off procedure before.

The Take-off Power Consumption of Take-off Roller Drive (forward)

This value is the average percentage of the power consumption on the take-off roller drive when the chassis moves forward. This value is about the take-off procedure before.

7.5.3 Production Mode 2

In production mode 2 the target values depend on the height of the bale group and the machine works in the same way as the predecessor machine A11.

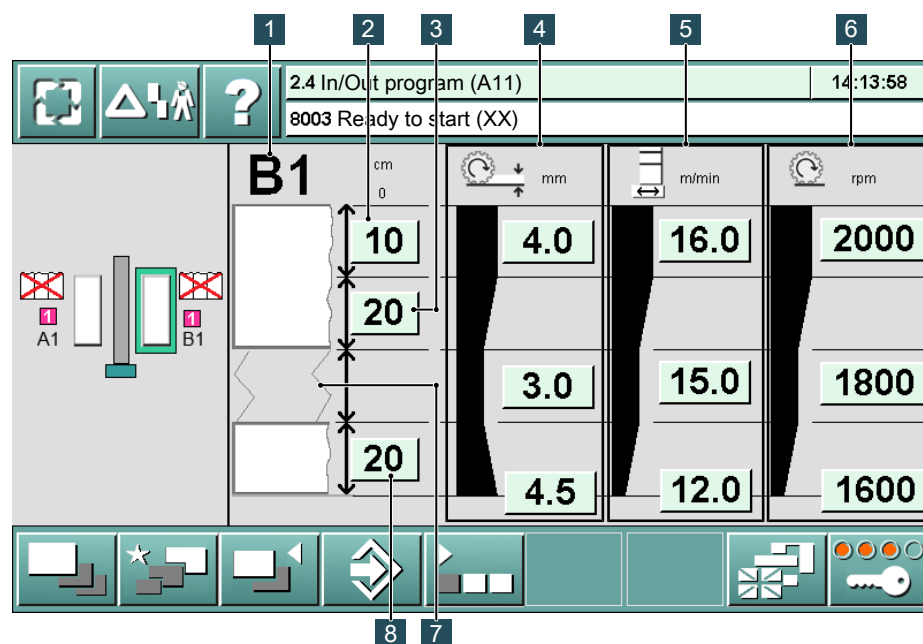


Figure 105: In/Out program (A11)

2	Stacking with loose material	3	Height for run-in program
7	Middle (main) layer	8	Height for run-out program

The field **1** shows the selected bale group from the left.

The field **4** shows the take-off depth. The 3 values are active according to the layer of the bale group.

– Min. - max.: 0.6 - 16.0 mm

The field **5** shows the movement speed of the take-off unit. The 3 values are active according to the layer of the bale group.

– Min. - max.: 6 - 16 m / min.

In order that the loose layer of the bales is taken off as quickly as possible, a higher speed is recommended. In order to prevent the bales from being moved at the end, a slower speed is recommended.

The field **6** shows the take-off drive speed. The 3 values are active according to the layer of the bale group.

– Min. - max.: 1200 -2200 rpm

7.6 Setting the Production

This chapter shows the production adjustments.

7.6.1 Setting Correction of the One-Time Take-off Depth

The correction of the one-time take-off depth only works this time or the next time.

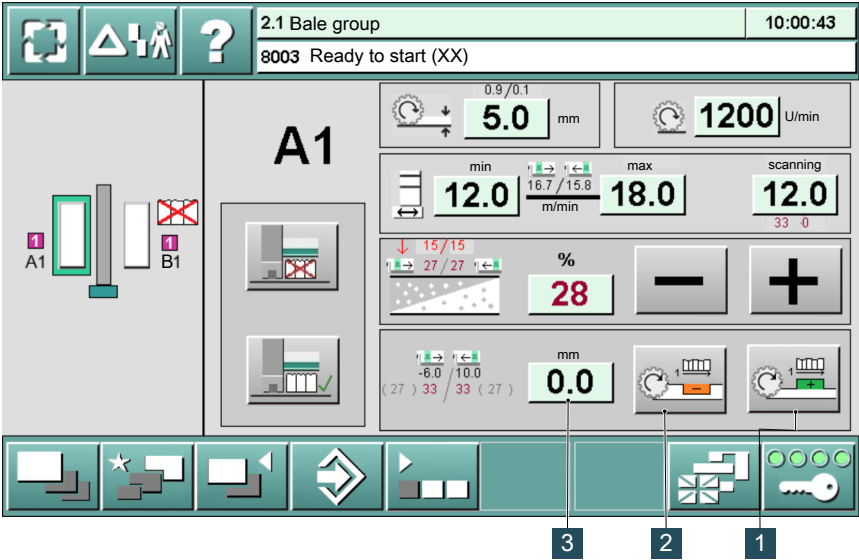


Figure 106: Correction of one-time take-off depth

1	[Increase] touch key	2	[Decrease] touch key
3	Value of One-time take-off depth correction		

How to set the one-time take-off depth correction

Method 1	The value of one-time take-off depth correction is entered. The range of the value is from 0 to +12.
Method 2	The [Decrease] touch key or [Increase] touch key is tapped to change the take-off depth value.

The start button must be pushed to apply the immediate take-off depth correction. The effect of the one-time take-off depth correction can be examined in the data screen.

7.6.2 Adjusting the Correction of One-Time Take-off Depth

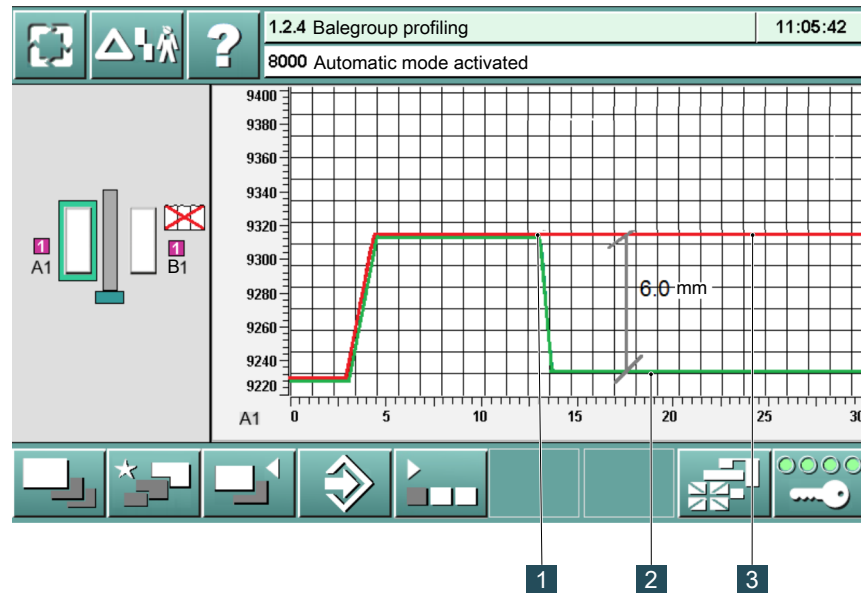


Figure 107: Adjustment of one-time take-off depth correction

- | | |
|---|---|
| 1 Correction point | 2 Next take-off procedure line (green) |
| 3 Take-off procedure line at this time (red) | |

Usually, the green line **2** follows the red line **3**, but when a correction value is set, the correction point **1** shows.

If the user selects increase in the data screen 2.1, the take-off line at this time goes lower. The production in the next procedure goes higher.

If the user selects decrease in the data screen 2.1, the take-off line at this time goes higher. The production in the next procedure goes lower.

When the machine has the material jam because of the too high production, the user sets the negative take-off depth correction to make the production goes lower.

Example If the 3 requirements that follow are met:

- The take-off depth is 5 mm.
- The automatic correction of the take-off depth is +2 mm.
- The value of one-time take-off depth correction is set to be +6 mm.

Then:

The take-off depth that shows in the data screen Overview at this time is 13 mm.

7.7 Setting the Panel Brightness

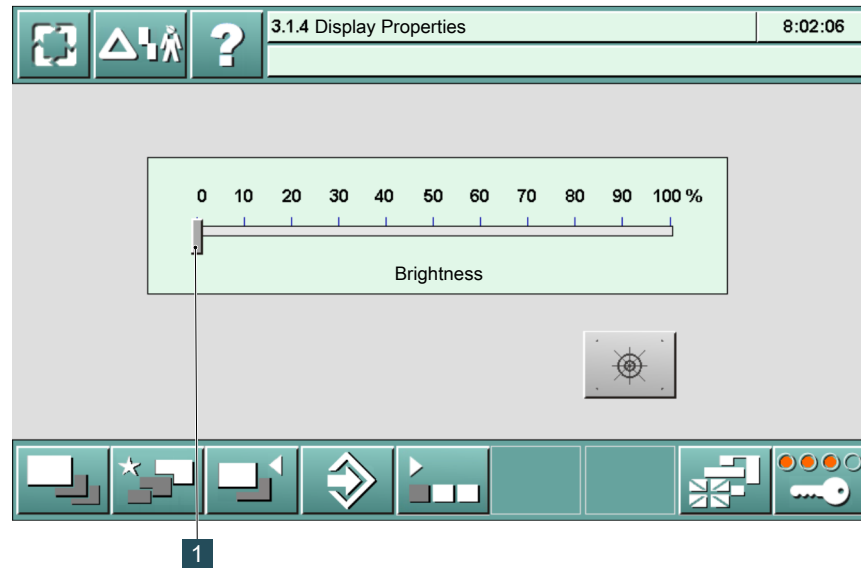


Figure 108: Panel brightness

1. To adjust the brightness of the panel, move the brightness slider **1**.

Result The panel brightness is set.

7.8 Machine Drives

Setting the Drives

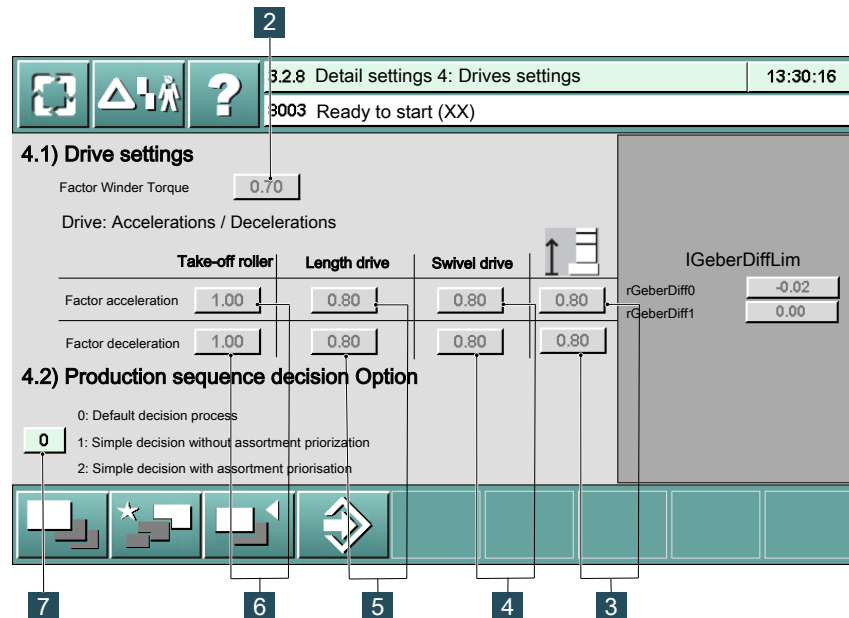


Figure 109: Drive adjustments

The relative parameters of the machine drive can be set in the data screen by referring to the table that follows.

Drive Name	Range	Default
The winder drive 1	0.1 – 1.5	0.7
The take-off unit lift drive 2	0.4 – 1.0	0.8
The tower drive 3	0.4 – 1.5	0.8
The chassis drives 4	0.4 – 1.5	0.8
The take-off roller drive 5	0.2 – 1.0	1.0

Selecting the Production Sequence

The production sequence can be selected at value field **7**. The default value is 0.

If the decision Option 1 or 2 is selected, the tower does not turn at the end of the last bale group.

7.9 Service Mode

In the service mode of the machine, the machine can go to the end position that can cause dangerous damage of the machine. Only the approved personnel are permitted to operate the machine in the service mode.

7.9.1 Moving the Take-off Unit

This chapter describes the methods to move the take-off unit manually and release the motor brake.

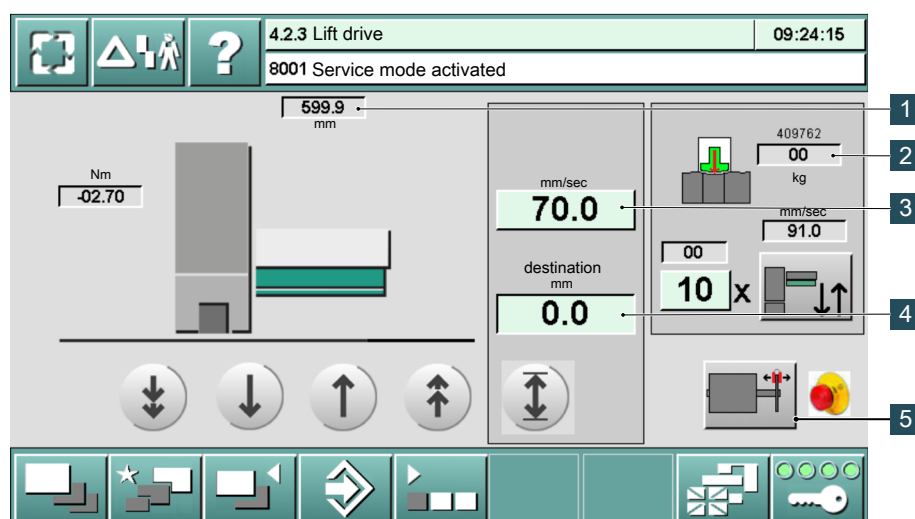


Figure 110: Movement of the take-off unit

Moving the Take-off Unit

The Up Movement of the Take-off Unit

Make sure that the criteria are obeyed:
✓ The data screen 4.2.3 shows on the panel.

Prerequisites



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Up] touch key or [Quickly Down] touch key.

1. Tap the [Quickly Up] touch key or [Slowly Up] touch key.
⇒ A green rectangle shows around the [Quickly Up] touch key or [Slowly Up] touch key.
2. Push and hold the start button on the control console.
⇒ The take-off unit is moved up.

The Down Movement of the Take-off Unit

Make sure that the criteria are obeyed:
✓ The data screen 4.2.3 shows on the panel.

Prerequisites



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Up] touch key or [Quickly Down] touch key.

1. Tap the [Fast Down] touch key or [Slowly Down] touch key.
⇒ A green rectangle shows around the [Fast Down] touch key or [Slowly Down] touch key.
2. Push and hold the start button on the control console.
⇒ The take-off unit is moved down.

Direct Movement

The field **2** shows the pressure of the take-off unit.

Movement speed: 2 – 150 mm/s

Default: 70 mm/s

Prerequisites

Make sure that the criteria are obeyed:
✓ The data screen 4.2.3 shows on the panel.

**NOTICE****Fast movement!**

The fast movement of the take-off unit causes dangerous damages.

► Set the speed parameter of the take-off unit less than 100 mm/sec.

1. Set movement speed of the take-off unit in the value field **3**.
2. Set a destination height in the value field **4** that the take-off unit directly moves to.
3. Refer to the take-off unit height in the value field **1** to set the destination height.
4. Tap the [Direct Movement] touch key.
 - ⇒ A green rectangle shows around the [Direct Movement] touch key.
5. Push the start button on the control console.
 - ⇒ The take-off unit is moved to the destination height.

Releasing the Motor Brake

Prerequisites Make sure that the criteria are obeyed:

✓ The take-off unit is above a bale.

1. Push an emergency stop button on the machine.
2. Tap [Motor Brake Release] touch key **5**.
 - ⇒ A green rectangle shows around the [Motor Brake Release] touch key **5**.
3. Push and hold the start button on the control console until the take-off unit is put on the bale with the weight (when the user stops to push the start button, the machine has the motor brake again).
 - ⇒ The motor brake is released.

Result The take-off unit is moved.

7.9.2 Turning the Tower

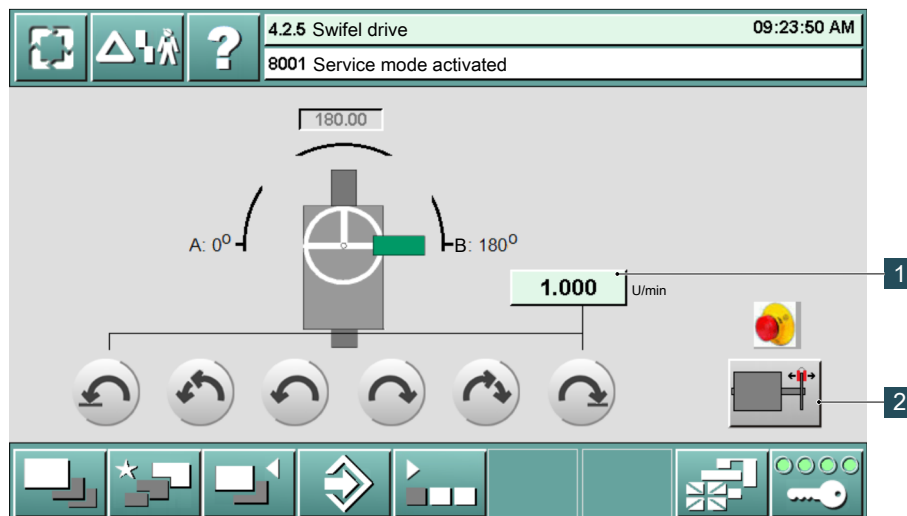


Figure 111: Tower turning

Turning Directly

The tower speed can be set in value field **1** by referring to the table that follows. Then the tower turns to position 0° or position 180° in the set tower speed.

Range	0.05 – 2.14 rpm
Default	1 rpm

Turning to Side A



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Counterclockwise Turn] touch key or [Quickly Clockwise Turn] touch key.



NOTICE

Fast movement!

- The fast movement of the tower causes dangerous damages.
- Set the speed parameter of the tower less than 1.42 rpm.

There are 3 accesses to turn the machine to side A:

- The [Slowly Counterclockwise Turn] touch key can be used to turn the machine to side A.

- The [Quickly Counterclockwise Turn] touch key can be used to turn the machine to side A.
- The [Directly to Position 0°] touch key can be used to turn the machine to side A.

Turning to Side B



NOTICE

Fast movement!

- ✓ The fast movement of the take-off unit causes the machine damage.
- If the take-off unit goes near the mechanical limit positions at the machine, do not use the [Quickly Counterclockwise Turn] touch key or [Quickly Clockwise Turn] touch key.



NOTICE

Fast movement!

- The fast movement of the tower causes dangerous damages.
- Set the speed parameter of the tower less than 1.42 rpm.

There are 3 accesses to turn the machine to side B:

- The [Slowly Clockwise Turn] touch key can be used to turn the machine to side B.
- The [Quickly Clockwise Turn] touch key can be used to turn the machine to side B.
- The [Directly to Position 180°] touch key can be used to turn the machine to side B.

Releasing the Motor Brake

1. Push an emergency stop button on the machine.
2. Tap the [Motor Brake Release] touch key **2**.
 - ⇒ A green rectangle shows around the [Motor Brake Release] touch key **2**.
3. Push and hold the start button.
 - ⇒ The motor brake is released.
 - ⇒ The tower can be turned by hand if there are problems.

Result The tower is turned.

7.9.3 Downloading and Uploading the Data

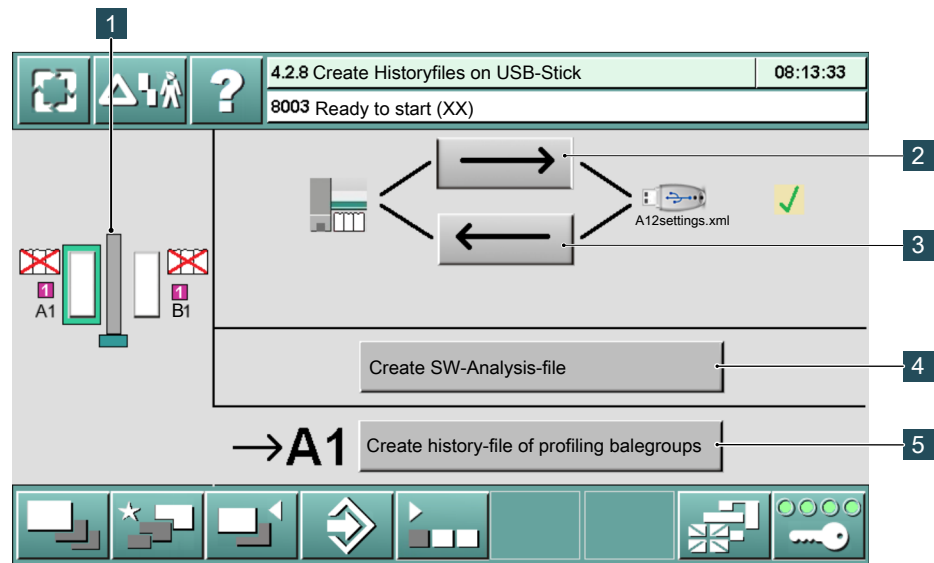


Figure 112: Download and upload

Downloading the Machine Adjustments

Prerequisites Make sure that the criteria are obeyed:

- ✓ The data screen 4.2.8 shows on the screen.
 - ✓ A USB flash drive.
1. Put a USB stick into the USB interface on the control console.
 - ⇒ If the USB flash drive is not plugged in or the USB flash drive has a fault, the error symbol **6** shows.

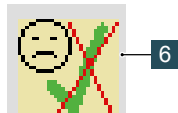


Figure 113: Error message symbol

2. Tap the [Download] touch key **2** to download the machine adjustments to the USB flash drive.
 - ⇒ A green rectangle shows around the [Download] touch key **2**.
3. Push the start button on the control console.
4. Wait until the download of the machine adjustments completes.
 - ⇒ A green check mark shows when the downloading process is completed.
5. Remove the USB flash drive.
 - ⇒ The machine adjustments are downloaded into the USB flash drive.

Uploading the Machine Adjustments

Prerequisites Make sure that the criteria are obeyed:

- ✓ The data screen 4.2.8 shows on the screen.
- ✓ A USB flash drive with the adjustment data.
- 1. Put a USB flash drive into the USB interface on the control console.
- 2. Tap the [Upload] touch key **3** to upload the machine adjustments to the machine.
 - ⇒ If the machine adjustments are not correct, then a symbol of a red eye with 2 incorrect data screen keys shows at the incorrect adjustment. Tap the related incorrect data screen key to go to examine its adjustments.
 - ⇒ If a value is out of range, then the value goes back to its default value. Refer to the actual production to set the value.
 - ⇒ A green rectangle shows around the [Upload] touch key **3**.
- 3. Push the start button on the control console.
- 4. Wait until the uploading of the machine adjustments completes.
 - ⇒ A green check mark shows when the uploading procedure is completed.
- 5. Remove the USB flash drive.
 - ⇒ The machine adjustments are uploaded into the machine.

Making Software (SW) Analysis Files

Prerequisites Make sure that the criteria are obeyed:

- ✓ The data screen 4.2.8 shows on the screen.
- ✓ A USB flash drive.
- 1. Put a USB stick into the USB interface on the control console.
- 2. Tap the [Create SW-Analysis-file] touch key **4**.
 - ⇒ A green rectangle shows around the [Create SW-Analysis-file] touch key **4**.
- 3. Push the start button on the control console.
- 4. Wait until the analysis files are made.
- 5. Remove the USB stick.
 - ⇒ The software analysis files are made into the USB flash drive with the file name of StateHist.csv.

Making History Files of Profiling Bale Groups

When the user waits in the procedure of making the file, the user can go the data screen Overview to other production. The user knows if the procedure is completed on the left of the data screen Overview.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The data screen 4.2.8 shows on the screen.
- ✓ A USB flash drive.
- 1. Put a USB flash drive into the USB interface on the control console.

2. Select the target bale group in the selection field **1**.
3. Tap the [Create history files of profiling bale groups] touch key **5**.
⇒ A green rectangle shows around the [Create history files of profiling bale groups] touch key **5**.
4. Push the start button on the control console.
5. Wait until the history files are made.
6. Remove the USB flash drive.
⇒ The history files with the file name HistoryBGx.csv are made into the USB flash drive.

Result The data is downloaded or uploaded.

7.10 Manual Operation

The [Manual Operation] touch key can be tapped in the data screen **Overview** to go into the manual operation screen.

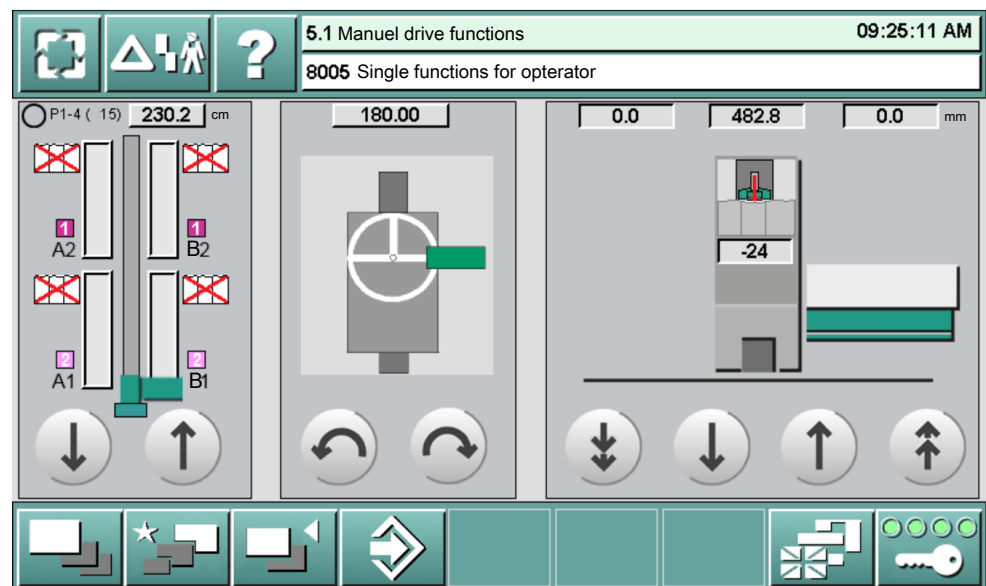


Figure 114: Manual operation

Moving the Chassis

Prerequisites Make sure that the criteria are obeyed:

- ✓ The tower is in position 0° or position 180°.
- ✓ The take-off unit is in the highest position.
- ✓ Airflow in channel holds the cover tape.

1. Tap the [Slowly Rearward] touch key or the [Slowly Forward] touch key to move the chassis.
⇒ A green rectangle shows around the [Slowly Rearward] touch key or the [Slowly Forward] touch key.

2. Push and hold the start button on the control console.

Result The chassis is moved.

Turning the Tower

Prerequisites Make sure that the criteria are obeyed:

- ✓ The chassis is in the P0 position (outside the bale groups).
 - ✓ The take-off unit is in its highest position.
1. Tap the [Slowly Counterclockwise Turn] touch key or the [Slowly Clockwise Turn] touch key.
 - ⇒ A green rectangle shows around the [Slowly Counterclockwise Turn] touch key or the [Slowly Clockwise Turn] touch key.
 2. Push and hold the start button on the control console.

Result The tower is turned.

Moving the Take-off Unit

The take-off unit can be moved down in a distance. There are 3 conditions have an effect on the distance:

- A bale group is below the take-off unit.
- The bale group is prepared for production.
- The take-off unit is in position 0.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The data screen 5.1 shows.
1. Tap the [Fast Down] touch key or the [Slowly Down] touch key to lower the take-off unit.
 - ⇒ A green rectangle shows around the [Fast Down] touch key or the [Slowly Down] touch key.
 2. Push and hold the start button on the control console.
 - ⇒ The take-off unit comes lower.
 3. Tap the [Quickly Up] touch key or the [Slowly Up] touch key.
 - ⇒ A green rectangle shows around the [Quickly Up] touch key or the [Slowly Up] touch key.
 4. Push and hold the start button on the control console.

Result The take-off unit comes higher.

8 Troubleshooting

This chapter contains the information about the fault cause and the remedy of:

- Faults that are marked with fault codes
- Faults that are not marked with fault codes
- Material specific faults

8.1 Troubleshooting Personnel

Only Rieter approved personnel are permitted to do the troubleshooting work at the machine.

8.2 About the Fault Message Lists

All faults with fault codes that are shown on the operating unit are recorded in a fault message list with numbers that increase.

The fault message list helps to correct a fault that occurs during the machine operation.

A fault message list contains 4 columns. The columns contain the information that follows:

Table Head	Explanation
Fault code	The fault code is the number to identify a fault.
Fault text	The fault text gives a short description of the fault.
Fault cause	The fault cause shows the condition that started the fault. 1 or more causes are possible.
Remedy	The remedy shows the alternatives how to correct the fault.

The machine shows different alarm levels on the operating unit. Different alarm levels cause different machine reactions.

Alarm Level	Fault Icon	Impact on the Production	Explanation
Alarm		The production stops.	An alarm immediately stops the production. An operator intervention is necessary. To start the production, is not possible until the fault is repaired. The signal lamp is on.

Alarm Level	Fault Icon	Impact on the Production	Explanation
Warning message		The production continues, but the output is possible to be decreased.	The production does not immediately decrease. An operator intervention must follow as soon as possible to prevent that the production decreases or stops. The signal lamp is off or flashes in relation to the fault cause. A warning message can become an alarm at any time.
Maintenance warning		The production continues.	A maintenance warning tells the maintenance personnel to do specified works at the machine. The maintenance warnings are caused by a software that monitors the machine units. The 2 types of maintenance warnings are: – Do the maintenance as soon as possible. Get maintenance personnel in less than a day. – Do the maintenance during the next timed maintenance interval. The signal lamp flashes. A maintenance warning can get an alarm at any time.

Data in curly parentheses {...} are placeholders for a number or a text in the fault message that is adapted to the situation.

8.3 Safety Circuit Elements

Error Code	Error Text	Cause	Remedy
200	Emergency shut down control (S10)	The emergency stop push button on the control console is on.	Release the emergency stop push button.
		Wiring error.	Examine the wiring.
		The emergency stop push button on the control console is defective.	– Examine the emergency stop push button and its contacts. – If necessary, replace the emergency stop push button.

Error Code	Error Text	Cause	Remedy
		The IO input card is defective.	Replace the IO input card.
201	Emergency shut down take-off unit (S63)	The emergency stop push button on the take-off unit is on.	Release the emergency stop push button.
		Wiring error.	Examine the wiring.
		The emergency stop push button on the take-off unit is defective.	– Examine the emergency stop push button and its contacts. – If necessary, replace the emergency stop push button.
		The IO input card is defective.	Replace the IO input card.
202	Door of tower open (B9)	The tower door is open.	Close the tower door.
		Wiring error.	Examine the wiring.
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		The IO input card is defective.	Replace the IO input card.
203	Cover taping machine open (B50)	The winder hood is open.	Close the winder hood.
		Wiring error.	Examine the wiring.
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		The IO input card is defective.	Replace the IO input card.
204	Front hood take-off unit open (B62)	The front door on the take-off unit is open.	Close the front door.
		Wiring error.	Examine the wiring.
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		The IO input card is defective.	Replace the IO input card.

Error Code	Error Text	Cause	Remedy
210	Person monitoring alarm (A60)	An object or a person is in the scanning range.	Remove the object or the person.
		Wiring error.	Examine the wiring.
		The laser scanner is defective.	Replace the laser scanner.
		The IO input card or the IO output card is defective.	Replace the IO input card or the IO output card.
211	Floor not detected (A60)	The floor is too glossy or too dark for the self test of the sensor.	Update parameters of the laser scanner to version 5 or higher.
220	Collision protection chassis front (B31)	The front safety flap of the chassis is pushed in.	Remove the obstacles and then adjust the safety flap back to its usual position.
		Wiring error.	Examine the wiring.
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		The IO input card is defective.	Replace the IO input card.
221	Collision protection chassis rear (B32)	The rear safety flap of the chassis is pushed in.	Remove the obstacles and then adjust the safety flap back to its usual position.
		Wiring error.	Examine the wiring.
222	Collision protection take-off unit left (B60)	The left safety flap of the take-off unit is pushed in.	Remove the obstacles and then adjust the safety flap back to its usual position.
		Wiring error.	Examine the wiring.
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		IO input card is defective.	Replace the IO input card.
223	Collision protection take-off unit right (B61)	The right safety flap of take-off unit is pushed in.	Remove the obstacles and then adjust the safety flap back to its usual position.
		Wiring error.	Examine the wiring.

Error Code	Error Text	Cause	Remedy
		The safety switch is defective or not correctly set.	– Examine or adjust the safety switch. – If necessary, replace the safety switch.
		The IO input card is defective.	Replace the IO input card.
230	Pressure monitoring: Pressure too low (B22)	The air stream is not sufficient.	Increase the air stream.
		Blockages.	Find and remove the possible blockages.
		The minimum necessary air stream value is set too low.	Increase the value Min. necessary airstream in the data screen 3.2.7.
		Wiring error.	Examine the wiring.
		The differential pressure transmitter is defective.	Replace the differential pressure transmitter.
		The IO input card is defective.	Replace the IO input card.
231	Force sensor for takeoff unit doesn't deliver a correct signal (raw value, net value kg, B15)	Raw value of load cell higher than 1'200'000.	Check if the spindle is mounted properly.
			– Check the raw value difference of load cell at bottom, middle and high position of the lift drive in data screen 4.2.3. – Make sure that the value is around 400'000 and the difference is less than 50'000.
			Replace the load cell (<i>refer to ► 189</i>).
			Examine the wiring.
232	Force sensor B15 deformed --> replace soon! (raw value, net value kg, B15)	Raw value of load cell higher than 900'000	Replace the IO input card.
			Check if the spindle is mounted properly.

Error Code	Error Text	Cause	Remedy
			– Check the raw value difference of load cell at bottom, middle and high position of the lift drive in data screen 4.2.3. – Make sure that the value is around 400'000 and the difference is less than 50'000.
			Replace the load cell (<i>refer to ► 189</i>).
			Examine the wiring.
			Replace the IO input card.
233	Force sensor B15 not correctly wired	No signal from the load cell	Examine the wiring.
			Replace the load cell (<i>refer to ► 189</i>).
			Replace the IO input card.

Table 2: Safety Circuit Elements

8.4 External Events

Error Code	Error Text	Cause	Remedy
250	External interrupt	A non-A12-malfunction that is caused by a specific customer input occurs.	Correct the malfunction.
		Writing error	Examine wiring. Usually, 24 VDC must be applied on the input.

Table 3: External Events

8.5 Operation Errors and Sequence Errors

Error Code	Error Text	Cause	Remedy
300	No reachable bale group is released	A bale group is not released for take-off.	Release appropriate bale groups for take-off in the data screen 2.1.
301	All bale groups are taken off or blocked	All bale groups are taken-off or are not released for take-off.	Release appropriate bale groups for take-off in the data screen 2.1.

Error Code	Error Text	Cause	Remedy
320	Position lift drive not referenced (U7)	The lowest 0-position of the lift drive is not set.	Set the lowest 0-position of the lift drive in the data screen 4.3.1.
321	Position tower drive not referenced (U5)	The tower drive is not set.	Set the tower drive in the data screen 4.3.2.
322	Position length drive not referenced (U3)	The chassis drive range is not set.	First, set the drive range in the data screen 4.3.3. Then, move to P0 in the data screen 4.3.3, if the error continues.
342	Maximum driveway overtraveled	The destination is more than the maximum permitted movement range of chassis.	Correctly set the movement range of chassis in the data screen 4.3.3.
		Minimal driveway overtraveled	Check if the Barcode tape is mounted properly (refer to ► 179).
			Press the E-Stop button and move the tower by hand 2m away from the control station.
343	Wrong start-/end-position of a balegroup	One or more values of the start-position and the end-position for the bale groups are not correct.	Correctly set the values of the start position and the end position for the bale groups in the data screen 2.3. Minimum distances must be correct.
350	Lift destination outboard of current allowed vertical limit (M8): (Error Code, Error Id)	The destination is more than the maximum permitted movement range of take-off unit.	Correctly set the movement range of take-off unit in the data screen 4.3.1.

Error Code	Error Text	Cause	Remedy
351	Pressure of take-off unit on bales too high (raw value, net value kg, B15)	Raw value of load cell lower than 60'000 or contact pressure higher than 350kg (Parameter screen 3.2.7 max. take-off unit pressure -100 kg)	In automatic mode: – Scan the bale group new if you have put additional material on the bale group. – Adjust settings: – Decrease the take-off depth and chassis speed or increase the penetration factor (<i>refer to ► 122</i>). In test mode: – Lift up the take-off unit.

Table 4: Operation Errors and Sequence Errors

8.6 Drive Overloads

Error Code	Error Text	Cause	Remedy
400	B&R ACOPOS-Module (EIS): Temperature too high (Error Code)	The ACOPOS control module is too hot.	Let the temperature of the module decrease and reduce the production.
		The filter of the electrical cabinet fan is clogged.	Clean the filter.
		The electrical cabinet fan does not operate.	– Examine the electrical cabinet fan. – If necessary, replace the electrical cabinet fan.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
401	B&R ACOPOS-Module (EIS): Overload (Error Code)	The ACOPOS control module is overloaded.	Reduce the production.
		The drive may be blocked.	Examine the drive for possible blockages.
		The motor or the regulator module is defective.	Replace the motor or regulator module.

Error Code	Error Text	Cause	Remedy
		The cable is defective.	– Examine the two motor cables. – If necessary, replace the motor cables.
402	B&R ACOPOS-Module (EIS): direct current link voltage not OK (Error Code)	A drive uses too much energy.	Lower the acceleration or the production.
		Blockage of the drive.	Examine the drive for possible blockages.
		The motor or regulator module is defective.	Replace the motor or regulator module.
410	Electrical disconnection or motor length drive (EIS): Temperature too high (Error Code)	The motor temperature is too high.	Let the temperature of the motor decrease and reduce the production.
		Blockage of the drive.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
	(Error 7038: Transducer module on ACOPOS- Module defective Error 7022: Defective cable between the motor and the transducer module Error 5034: Transducer module on the motor defective)	(The transducer module on the ACOPOS control module is defective or not correctly plugged in.)	(Correctly plug in the transducer module or replace the transducer module if necessary.)
411	Motor take-off unit (EIS): Overload (Error Code)	The motor is overloaded.	Decrease production.
		Blockage of the drive.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
412	Motor take-off unit (EIS): rotation speed not reached! (Error Code)	The drive may be blocked.	Examine the drive for possible blockages.

Error Code	Error Text	Cause	Remedy
		The encoder module in the ACOPOS regulator module is defective.	Replace the encoder module.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
413	Takeoff unit: Drive belt problem	Too less torque registered by start take-off roller	Examine the belt.
420	Motor lift drive (EIS): Temperature too high (Error Code)	The motor temperature is too high.	– Let the temperature of the motor decrease. – If necessary, scan all the bale groups.
		The drive may be blocked.	Examine the drive for possible blockages.
		Motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
	(Error 7038: Transducer module on ACOPOS- Module defective Error 7022: Defective cable between motor and transducer module Error 5034: Transducer module on motor defective)	(The transducer module in the ACOPOS control module is defective or not correctly plugged in.)	(Correctly plug in the transducer module or replace the transducer module if necessary.)
421	Motor lift drive (EIS): Overload (Error Code)	The motor is overloaded.	Reduce the production.
		The drive may be blocked.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
430	Motor tower drive (EIS): Temperature too high (Error Code)	The drive may be blocked.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.

Error Code	Error Text	Cause	Remedy
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
	(Error 7038: Transducer module on ACOPOS- Module defective Error 7022: Defective cable between motor and transducer module Error 5034: Transducer module on motor defective)	(The transducer module in the ACOPOS control module is defective or not correctly plugged in.)	(Correctly plug in the transducer module or replace the transducer module if necessary.)
431	Motor tower drive (EIS): Overload (Error Code)	The drive may be blocked.	Examine the drive for possible blockages.
		The encoder module in the ACOPOS regulator module is defective.	Replace the encoder module.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
432	Motor tower drive (EIS): break doesn't hold (Error Code)	The take-off unit goes too deep into the bale groups so that the tower is turned when the chassis moves.	Scan the bale groups or reduce the production.
		The brake does not sufficiently hold.	Replace the motor.
440	Motor length drive (EIS): Temperature too high (Error Code)	The motor temperature is too high.	Let the temperature of the motor decrease and reduce the production.
		The drive may be blocked.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.

Error Code	Error Text	Cause	Remedy
	(Error 7038: Transducer module on ACOPOS- Module defective Error 7022: Defective cable between motor and transducer module Error 5034: Transducer module on motor defective)	(The transducer module in the ACOPOS control module is defective or not correctly plugged in.)	(Correctly plug in the transducer module or replace the transducer module.)
441	Motor length drive (EIS): Overload (Error Code)	The motor is overloaded.	Reduce the production.
		The drive may be blocked.	Examine the drive for possible blockages.
		Motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
442	Motor length drive (EIS): Slipping error (Error Code)	The drive wheels slip on the rails.	Correctly align the rails.
		Paint or greasy substances are on the rails.	Remove the paint or greasy substances on the rails or clean the rails.
		The drive may be blocked.	Examine the drive for possible blockages.
450	Motor wind-up drive (EIS): Temperature too high (Error Code)	The motor temperature is too high.	Let the temperature of the motor decrease.
		The drive may be blocked.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
	(Error 7038: Transducer module on ACOPOS- Module defective Error 7022: Defective cable between motor and transducer module Error 5034: Transducer module on motor defective)	(The transducer module in the ACOPOS control module is defective or not correctly plugged in.)	(Correctly plug in the transducer module or replace the transducer module.)
451	Motor wind-up drive (EIS): Overload (Error Code)	The drive may be blocked.	Examine the drive for possible blockages.
		The motor is defective.	Replace the motor.

Error Code	Error Text	Cause	Remedy
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.
452	Jam at wind-up of cover band --> open cover and check	The winder is blocked.	Remove the blockages.
		The motor is defective.	Replace the motor.
		The cable is defective.	– Examine the 2 motor cables. – If necessary, replace the motor cables.

Table 5: Drive Overloads

8.7 Hardware Defects or Problems

Error Code	Error Text	Cause	Remedy
800	Sensor person monitoring at take-off unit defect (A60), (Error Code)	A start-up error.	Set the main switch to position OFF and then set it to position ON.
		Wiring error.	Examine the wiring.
		The 2D-sensor is defective.	Replace the sensor.
		The IO input card is defective.	Replace the IO input card.
		A 60 wrong parameters loaded or parameters lost	Load parameters (contact Rieter Service for parameters).
801	Barcode or Barcode-sensor defect or covered (U30/U1A), (Error Code)	The bar-code tape is damaged.	Replace the bar-code tape.
		The optical linear measurement sensor has cover on it.	Clean the sensor. Do not cover the sensor.
		The bar-code tape is dirty.	Clean the bar-code tape.
		The optical linear measurement sensor is defective or not correctly connected.	Replace the sensor or correctly connect the sensor.
810	B&R-Module (EIS) defect (control station)	The module is not correctly engaged or connected.	Correctly engage or connect the module with other modules.
		The module is defective.	Replace the module.
811	B&R-Module (EIS) defect (Tower)	The module is not correctly engaged or connected.	Correctly engage or connect the module with other modules.
		The module is defective.	Replace the module.

Error Code	Error Text	Cause	Remedy
		The A25 safety module may not be initialized.	Completely initialize the safety modules again in the data screen 4.3.4.
812	B&R module A20: Powerlink cable in drag chain defective or A20 module itself	The module is not correctly engaged or connected.	– Correctly engage or connect the module with other modules. – Check the powerlink cable to the module
		The module is defective.	Replace the module.
820	Safety Out-Module (EIS) problem, (Error No), (Error Code)	Wiring error.	Examine the wiring.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
		The safety output module is defective.	Replace the module.
		The output is too low, although a safety element is not activated.	
821	B&R ACOPOS-Module (U1) doesn't start (Error No)	The POWERLINK cable is not correctly connected.	Examine the POWERLINK cable and correctly connect it.
		Address of the control module is not correctly set.	Correctly set the address of the control module.
		The control module is not sufficiently attached onto the rack.	Sufficiently tighten the screws to attach the control module, especially the recessed screw where the motor cable is connected.
		ACOPSMulti line filter is not correctly connected (X1/X2).	Examine the wiring.
		Hardware problem.	See error number for more analysis. (If necessary, report the error number to Service).
		The ACOPOS control module is defective.	Replace the control module.
822	ACOPoS end position overrun (EIS), (Error Code), (Error Id)	The drive slips.	– Examine the drive. – Correctly align the drive, or clean.

Error Code	Error Text	Cause	Remedy
		Transducer module in the ACOPOS control module is defective or not correctly plugged in.	Correctly plug in or replace the transducer module.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
823	ACOPOS movement not possible (EIS), (Error Code), (Error Id)	Not all conditions are correct.	Set the main switch to position OFF and then set it to position ON.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
824	ACOPOS drive not ready (EIS), (Error Code), (Error Id)	The safety element is still activated (enabled input on the control module is not high).	– Close the doors and release the emergency stop push button. – Examine the wiring.
		The POWERLINK cable is not correctly connected.	Examine the POWERLINK cable and correctly connect it.
		Address of the control module is not correctly set.	Correctly set the address of the control module.
		The control module is not sufficiently attached onto the rack.	Sufficiently tighten the screws to attach the control module, especially the recessed screw where the motor cable is connected.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
825	Communication SPS to ACOPOS problem (Powerlink) (EIS), (Error Code), (Error Id)	The POWERLINK cable is not correctly connected.	Examine the POWERLINK cable and correctly connect it.
		Address of the control module is not correctly set.	Correctly set the address of the control module.

Error Code	Error Text	Cause	Remedy
		The control module is not sufficiently attached onto the rack.	Sufficiently tighten the screws to attach the control module, especially the recessed screw where the motor cable is connected.
		Hardware problem.	– See the error number for more analysis. – If necessary, report the error number to Service.
		The ACOPOS control module is defective.	Replace the control module.
826	Wrong Value for drive command (EIS), (Error Code), (Error Id)	The necessary movement of the lift drive is too fast.	Scan the bale groups again (with other settings, such as slower chassis movement speed for scanning).
827	Motor encoder: Slipping error, wiring or encoder defective (EIS), (Error Code), (Error Id)	Motor encoder: Wiring or encoder defective	Check wiring or replace motor.
830-853	B&R ACOPOS-Module (EIS) problem, (Error Code), (Error Id)	General problem of the ACOPOS drive unit.	– See the error number for more analysis. – If necessary, report the error number to Service.
860-867	ACOPOS drive not ready (EIS), (Error Code), (Error Id)	Drive not ready	– Try again. – See the error number for more analysis. – If necessary, report the error number to Service.
870-877	Communication SPS to ACOPOS problem (Powerlink) (EIS), (Error Code), (Error Id)	Powerlink connection to drive interrupted	– Examine the wiring. – Check the address switches of ACOPOS.
	Warning: Missing URL!	The panel T30 disconnects with the CPU.	Set the panel T30 (<i>refer to ► 215</i>).

Table 6: Hardware Defects or Errors

8.8 ACOPOS Error List

Error Code	Description
1008	Master for network coupling deactivated - Encoder error.

Error Code	Description
1012	Breakdown of cyclic network communication.
1016	Maximum cycle time exceeded - CPU load too high.
1022	Timeout in life sign monitoring of cyclic data to drive.
4005	Controller cannot be switched on: Drive in error state.
4007	Lag error stop limit exceeded.
4014	Two encoder control: Stop limit of positions difference exceeded.
5034	Homing procedure not possible: Encoder error.
5039	Function not possible: Encoder error.
6018	Hardware: Internal power supply failure.
6019	ACOPOS: Overcurrent.
6020	24 VDC supply: Undervoltage.
6045	Inverter: Output: No current flow.
6048	Motor holding brake movement monitor: Position error too large.
6049	Inverter: Output: Current measurement faulty.
6054	Power stage: Overcurrent.
6055	Holding brake: Low voltage.
6056	Holding brake: Low current.
6069	Holding brake: Overcurrent.
6072	Holding brake: High voltage.
7017	Encoder: Error while reading encoder parameter.
7021	Encoder: Timeout error while reading absolute position.
7045	Resolver: Signal disturbance (plausibility check).
7046	Resolver: Cable disturbance.
7053	Encoder: Power failure.
7070	Encoder: Lag error stop limit exceeded.
7200	DC bus: Overvoltage.
7211	DC bus: Voltage dip.
7212	DC bus: Large voltage dip.
7217	DC bus: Nominal voltage detection: Voltage too high.
7218	DC bus: Nominal voltage detection: Voltage too low.
7225	DC bus: Overvoltage.
7226	DC bus: Overcurrent.
7227	Bleeder: Overcurrent.
8011	EPROM: Data not valid.
9010	Temperature sensor (Motor Choke External): Stop limit exceeded.

Error Code	Description
9011	Temperature sensor (Motor Choke External): Switch off limit exceeded.
9050	ACOPOS peak current: Stop limit exceeded.
9051	ACOPOS peak current: Switch off limit exceeded.
9060	ACOPOS continuous current: Stop limit exceeded.
9061	ACOPOS continuous current: Switch off limit exceeded.
9070	Motor temperature model: Stop limit exceeded.
9075	ACOPOS continuous power: Stop limit exceeded.
9076	ACOPOS continuous power: Switch off limit exceeded.
9078	Power stage: Temperature sensor 1: Stop limit exceeded.
9079	Power stage: Temperature sensor 1: Switch off limit exceeded.
9089	Motor enr temperature sensor: Stop limit exceeded.
9096	DC bus relay temperature model: Stop limit exceeded.
9097	DC bus relay temperature model: Switch off limit exceeded.
9100	DC bus: Continuous total power: Stop limit exceeded.
9101	DC bus: Continuous total power: Switch off limit exceeded.
9102	DC bus: Peak total power: Stop limit exceeded.
9103	DC bus: Peak total power: Switch off limit exceeded.
9300	Current controller: Overcurrent.
31221	Encoder error: Cable disturbance or signal disturbance.
32077	A POWERLINK node number in module acp10cfg is invalid.
32078	A POWERLINK node number in module acp10cfg is used repeatedly.
33003	Address error exception
33004	Bus error exception
39003	EnDat encoder: Alarm bit is set.
39008	EnDat encoder: Alarm bit - Undervoltage
39009	EnDat encoder: Alarm bit - Overcurrent
39028	Encoder: Multiturn failure
41011	Temperature sensor (Motor Choke External): Warning limit is exceeded.
41031	Junction temperature model: Warning limit is exceeded.
41041	Bleeder temperature model: Warning limit is exceeded.
41051	ACOPOS peak current: Warning limit is exceeded.
41061	ACOPOS continuous current: Warning limit is exceeded.
41070	Motor temperature model: Warning limit is exceeded.
41075	ACOPOS continuous power: Warning limit is exceeded.

Table 7: ACOPOS Error Messages

9 Maintenance

This chapter contains the information about:

- The cleaning of the machine
- The lubrication of the machine
- The inspection of the machine

9.1 Maintenance Personnel

Only Rieter approved personnel are permitted to do the maintenance work at the machine.

9.2 Interval Specification

The intervals shown below are guide values.

Interval Specification	Duration in 3-shift Operation
165 operating hours	1 week
330 operating hours	2 weeks
660 operating hours	4 weeks
2 000 operating hours	3 months
4 000 operating hours	6 months
8 000 operating hours	1 year

9.3 Protocol for the Safety Circuit

In the protocol for the safety circuit, the replacement of each safety device is recorded.

The steps to replace the safety devices are as follows:

1. Identify each safety device in the electrical documentation of the machine.
2. Refer to the operation manual to replace each safety device. Replace fully the related safety devices.
3. To do the function test of each replaced safety device, refer to the operation manual of the machine.

Example of a protocol for the safety circuit:

Date	Device Tag	Location	Replacement Description	Who	Signature
01/01/2015	S8	= SLO + EC1	The emergency stop button is replaced because the red plastic push-button has mechanical damage.	J. Meyer	JM
01/07/2016			A function test of the safety circuit is done during the commissioning.	Mr. Field Engineer	FE
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

9.4 Cleaning Table by Cycle

Target group	Cleaning cycle	Additional information	
Operator	Cleaning each 165 h	9.8.5	Cleaning the Barcode Tape
	Cleaning each 660 h	9.8.6	Cleaning the Take-off Roller
Maintenance Personnel	Cleaning each 165 h	9.8.1	Cleaning the Machine
		9.8.2	Cleaning the 4-Point Bearing
		9.8.3	Cleaning the Cooling Fan and the Filter Mat
		9.8.4	Cleaning the Optical Linear Measurement Sensor

9.5 Lubrication Table by Cycle

Target group	Lubrication cycle	Additional information	
Maintenance Personnel	Lubrication each 2 200 h	9.9.1	Lubricating the Spindle
	Lubrication each 16 000 h	9.9.2	Lubricating the 4-Point Bearing
		9.9.3	Lubricating the Lift Drive Gearbox of the Take-off Unit
	Lubrication each 40 000 h	9.9.4	Lubricating the Chassis Drive Gearbox
		9.9.5	Lubricating the Tower Drive Gearbox

9.6 Inspection Table by Cycle

Target group	Inspection cycle	Additional information	
Inspector	Inspection each 8 000 h	9.10.2.2	Emergency Stop Push Button
		9.10.2.3	Safety Switches
		9.10.2.4	Laser Scanner

9.7 Lubricants

Use only lubricants as follow:

Lubricants Type	Description	Parts of A 12
Grease	ISOFLEX NBU 15	The spindle
	Gadus S2 V220 2 Shell	4-point bearing
Oil	Klubersynth GH 6-220	The gearbox of the take-off unit drive

9.8 Cleaning Tasks

This chapter contains the information how to clean the machine.

9.8.1 Cleaning the Machine

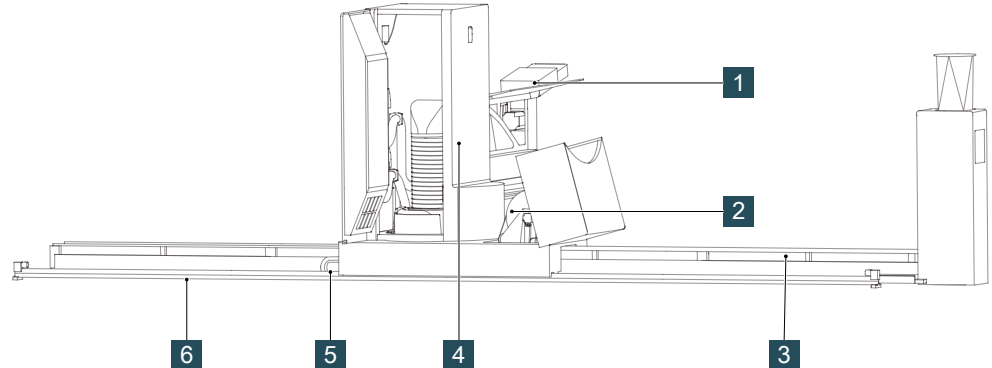


Figure 115: Cleaning of the machine

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
 - ✓ A vacuum cleaner is necessary.
1. Clean the channel and rails **3** with a vacuum cleaner.
 2. Clean the guiding groove **6** with a vacuum cleaner.
 3. Clean the power supply chain **5** with a vacuum cleaner.
 4. Clean the take-off unit **1** with a vacuum cleaner.
 5. Clean the swiveling tower **4** with a vacuum cleaner.

6. Clean the winder **2** with a vacuum cleaner.

Result The machine is cleaned.

9.8.2 Cleaning the 4-Point Bearing

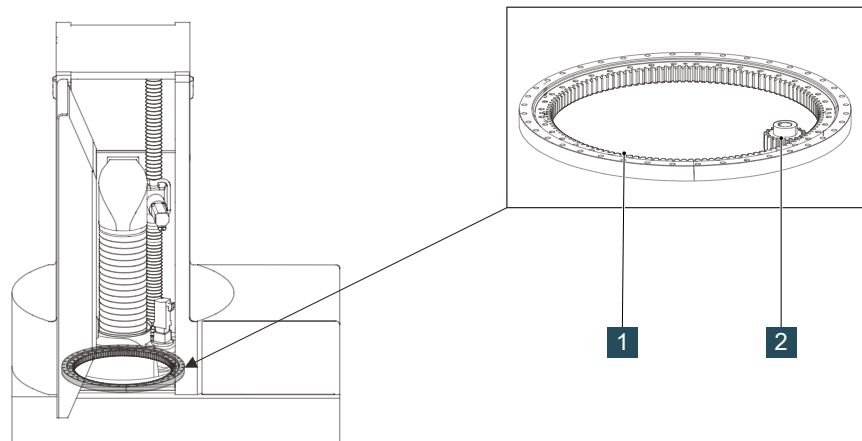


Figure 116: Cleaning of 4-point bearing

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ A roller picker is necessary.

1. Clean the 4-point bearing **1** with a roller picker.
2. Clean the tower drive **2** with a roller picker.

Result The 4-point bearing and the tower drive are cleaned.

9.8.3 Cleaning the Cooling Fan and the Filter Mat

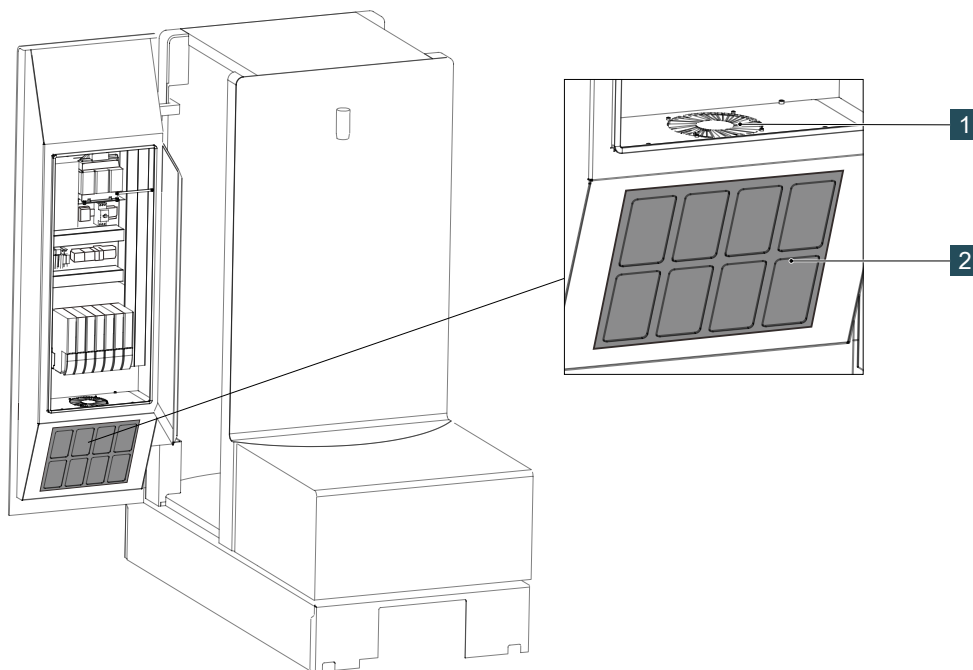


Figure 117: Cleaning of cooling fan and filter mat

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ A vacuum cleaner is necessary.

1. Clean the cooling fan **1** with a vacuum cleaner.
2. Clean the filter mat **2** with a vacuum cleaner.

Result The cooling fan and the filter mat are cleaned.

9.8.4 Cleaning the Optical Linear Measurement Sensor

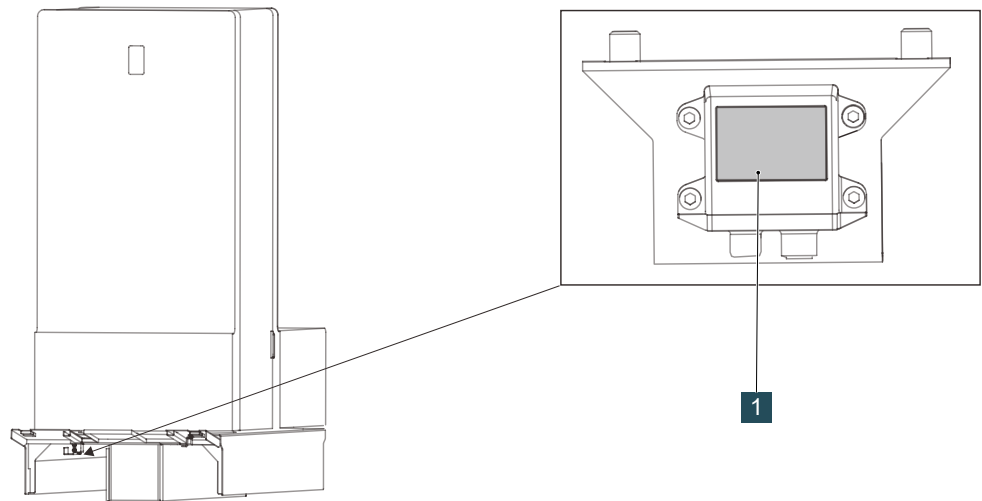


Figure 118: Cleaning of optical linear measurement sensor

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ A soft cloth is necessary.

1. Clean the sensor surface **1** with a soft cloth.

Result The optical linear measurement sensor is cleaned.

9.8.5 Cleaning the Barcode Tape

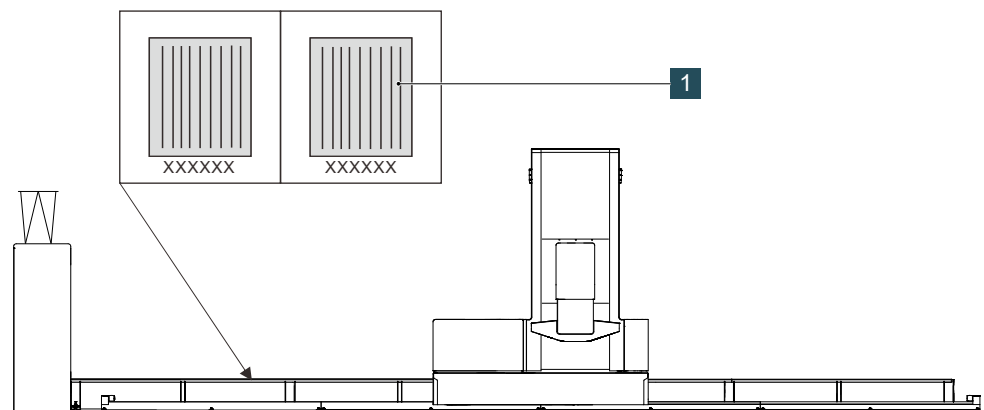


Figure 119: Cleaning of the barcode tape

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ A soft, dry, and lint-free cloth is necessary.

1. Clean the bar-code tape **1** with a soft, dry, and lint-free cloth.

Result The barcode tape is cleaned.

9.8.6 Cleaning the Take-off Roller

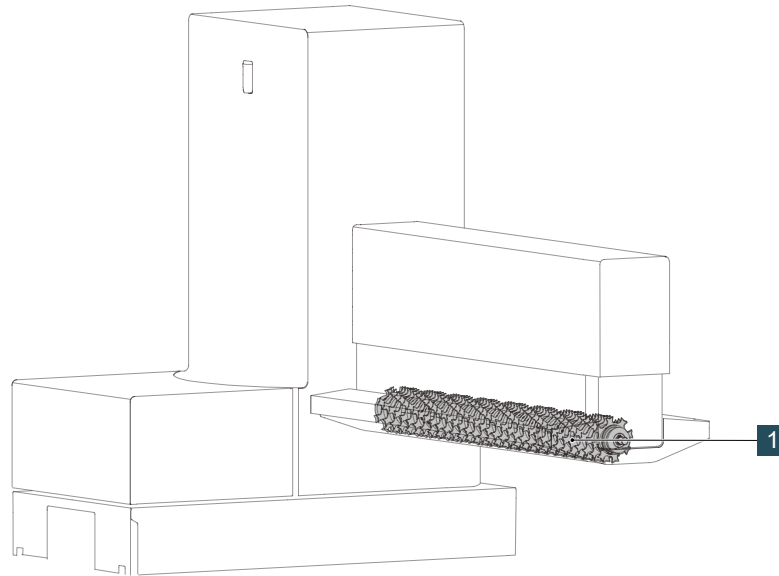


Figure 120: Cleaning of take-off roller

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ The main switch is set to the OFF position and padlocked.
 - ✓ A roller picker is necessary.
1. Clean the take-off roller **1** with a roller picker.

Result The take-off roller is cleaned.

9.9 Lubrication Tasks

This chapter contains the information about the lubrication tasks of the machine.



CAUTION

Incorrect storage and incorrect handling of the lubricants!

Irritation or burns to skin, eyes, or respiratory tract

Risk of slipping when spilled

- ▶ Read the safety data sheet.
- ▶ Use safety gloves and safety goggles.
- ▶ Do NOT touch hot lubricants.
- ▶ Clean up the spillage.

9.9.1 Lubricating the Spindle

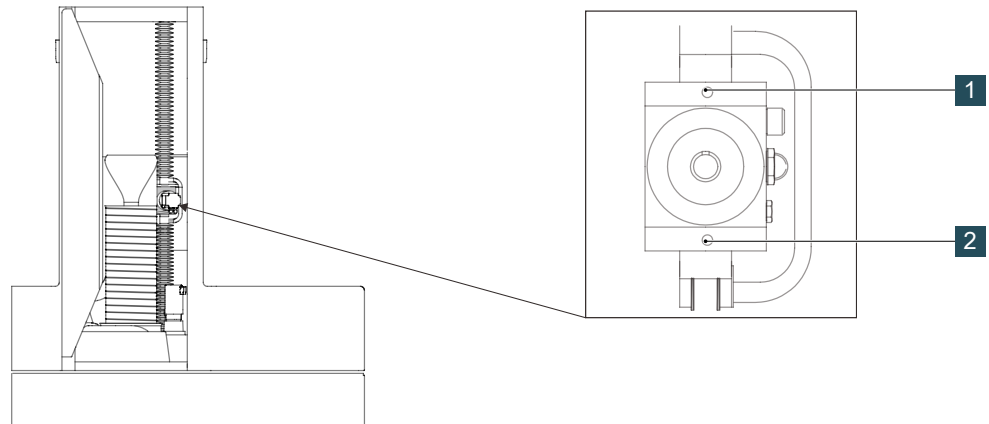


Figure 121: Lubrication of spindle

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
 - ✓ Grease: ISOFLEX NBU 15. Quantity: 3.2 g (6 pushes with the grease gun) for each nipple.
 - ✓ A grease gun is necessary.
1. Fill the grease into the nipple **1** with a grease gun.
 2. Fill the grease into the nipple **2** with a grease gun.

Result The spindle is lubricated.

9.9.2 Lubricating the 4-Point Bearing

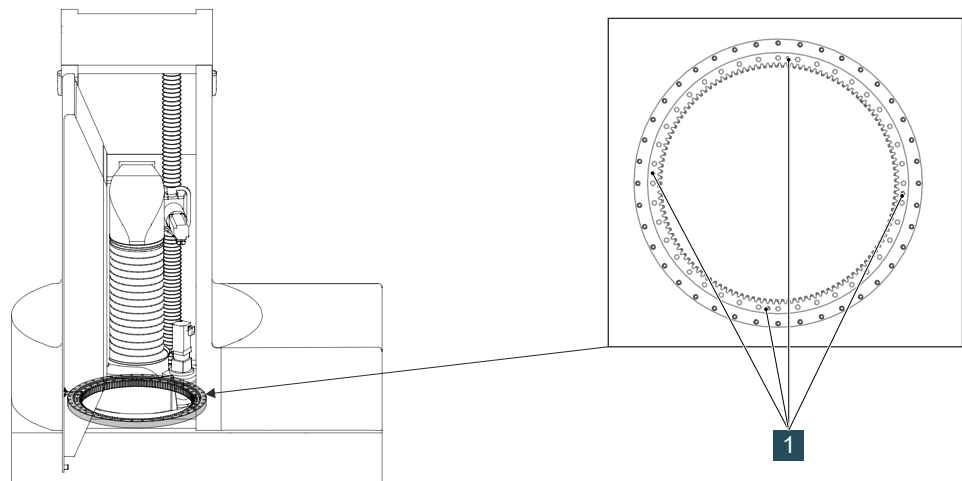


Figure 122: Lubrication of four-point bearing

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ Grease: Gadus S2 V220 2 Shell. Quantity: Lubricate the 4-point bearing until the grease goes out of the 4-point bearing seal.

✓ A grease gun is necessary.

1. Fill grease into the 4 nipples **1** with a grease gun.

Result The 4-point bearing is lubricated.

9.9.3 Lubricating the Lift Drive Gearbox of the Take-off Unit

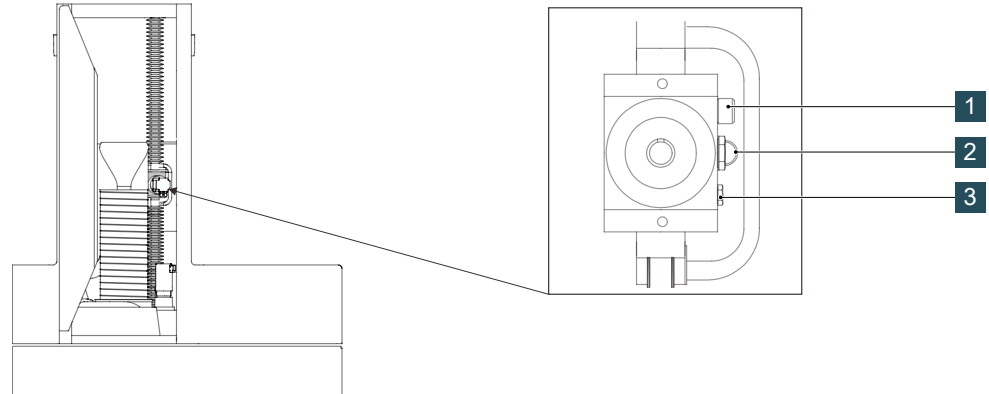


Figure 123: Lift drive gearbox of the take-off unit

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
 - ✓ Oil: Klübersynth GH 6-220. Quantity: 0.4 L.
1. Remove the lid **1** and the lid **3** to drain the used oil.
 2. Install the lid **3**.
 3. Fill the new oil through the lid **1** into the gearbox.
 4. Examine the oil level through the oil level glass **2**. Make sure that the oil level is accurately in the middle of the oil level glass.
 5. Install the lid **1**.

Result The oil of the lift drive gearbox of the take-off unit is changed.

9.9.4 Lubricating the Chassis Drive Gearbox

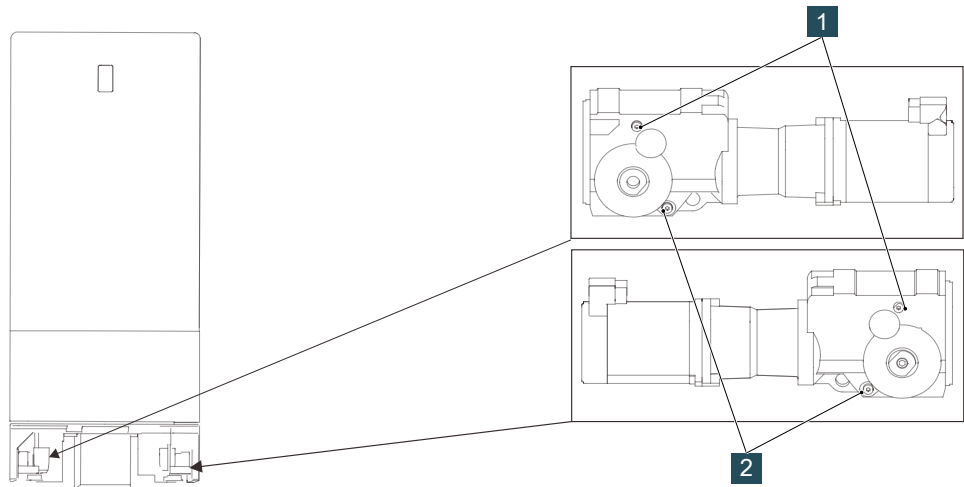


Figure 124: Chassis drive gearbox

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
 - ✓ Oil: Klübersynth GH 6-220. Quantity: 1 L for each gearbox.
1. Remove the screws **1** and screws **2** on 2 sides of the chassis to drain the used oil.
 2. Install the screws **2** on the 2 sides of the chassis.
 3. Fill the new oil into the holes of the screws **1**.
 4. Install the screws **1**.

Result The oil of the chassis drive gearbox is changed.

9.9.5 Lubricating the Tower Drive Gearbox

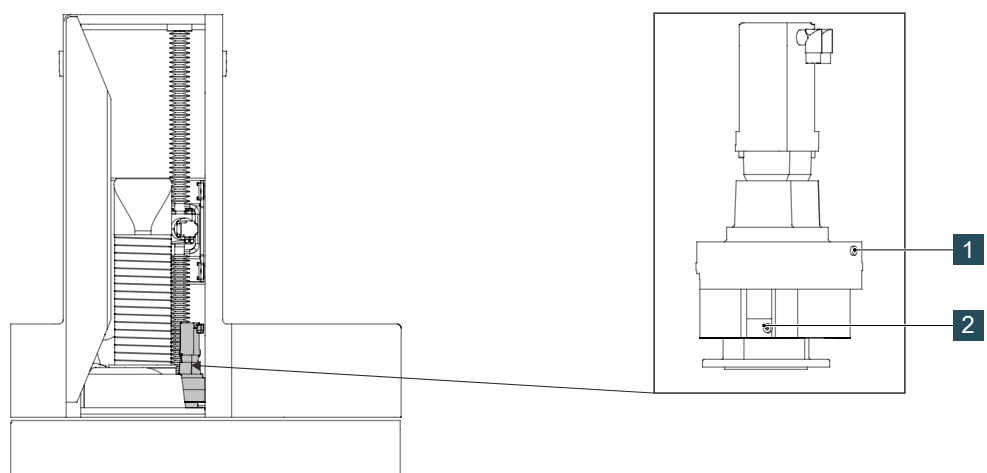


Figure 125: Tower drive gearbox

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- ✓ Oil: Klübersynth GH 6-220. Quantity: 2.5 L.
- 1. Remove the screw **1** and the screw **2** to drain the used oil.
- 2. Install the screw **2**.
- 3. Fill the new oil into the hole of the screw **1**.
- 4. Install the screw **1**.

Result The oil of the tower drive gearbox is changed.

9.10 Inspection Tasks

This chapter contains the information about the inspection tasks of the machine.

9.10.1 Special Maintenance Tasks

Below are special maintenance tasks in intervals.

Intervals	Parts	Step
165 operating hours	Tower drive gear	Examine the part and its function.
165 operating hours	Four-point bearing	Examine the part and its function.
165 operating hours	Cooling fan	Examine the part and its function.
165 operating hours	Filter mat	Examine the part and its function.
165 operating hours	Optical linear measurement sensor	Examine the part and its function.
165 operating hours	Barcode tape	Examine the part and its function.
660 operating hours	Take-off roller	Examine the part and its function.
660 operating hours	Barcode tape	Examine the part and its function.
660 operating hours	Toothed belt	Examine the part and its function.
660 operating hours	Guiding rollers	Examine the part and its function.
660 operating hours	Load cell	Examine the part and its function.
660 operating hours	Spindle	Examine the part and its function.

Intervals	Parts	Step
660 operating hours	Revolving device with hose	Examine the part and its function.
660 operating hours	Safety switch	Examine the part and its function.
660 operating hours	Lift drive gearbox of the take-off unit	Examine the oil level and the transparency of the oil. Change the oil if the oil level is too low or the oil became dark.

Table 8: Special Maintenance Tasks

9.10.2 Doing the Function Test of the Safety Circuits

The information that follows is about the functional test of the safety circuits.

9.10.2.1 Work Principle

The safety switches and the laser scanner are connected to the safety module (A 25).

If a sensor or a safety switch is connected, then the machine shows the related result:

Safety Module	Condition	Result
A 26	Set the 2 safety outputs to be TRUE = 24 VDC	All related sensor and safety switches operate correctly.
	Connect the safety inputs of ACOPOS servo module with Enable-input 1 and Enable-input 2.	All related sensors and safety switches operate correctly.
	When a safety switch or the laser scanner does not operate correctly in the machine conditions currently.	The safety outputs are set to be FALSE = 0 VDC. All motors stop or cannot start.

9.10.2.2 Emergency Stop Push Button

The functional test of the emergency stop push button can be done in the data screen 1.2.6.

1. Push down an emergency stop push button on the machine.

- ⇒ The related LED changes to red.
- ⇒ The Safety Out 1 and Safety Out 2 change to red after 1 – 2 seconds.
- 2. Release the emergency stop push button.
 - ⇒ The related LED changes to green.
 - ⇒ The Safety Out 1 and Safety Out 2 change to green.

Result The functional test of the emergency stop push button is completed.

9.10.2.3 Safety Switches

The functional test of the safety switches can be done in the data screen 1.2.6.

1. Find the door in which the safety switch is in.
2. Open the door to trigger the safety switch on the machine.
 - ⇒ The related LED changes to red.
 - ⇒ The Safety Out 1 and Safety Out 2 change to red after 1 – 2 seconds.
3. Close the door to release the safety switches.
 - ⇒ The related LED changes to green.
 - ⇒ The Safety Out 1 and Safety Out 2 change to green.

Result The functional test of the safety switches is completed.

9.10.2.4 Laser Scanner

The functional test of the laser scanner can be done in the data screen 4.2.2.

Protection Fields

On the right side of this data screen, there are 3 protection fields:

- **Protection field 1** (red)
- **Protection field 2** (orange)
- **Protection field 3** (green)

The 3 protection fields have different functions.

Protection Field	Description
Protection field 1	Monitor all persons or objects that go into the fields.
Protection field 2	
Protection field 3	Sense the floor to monitor the laser scanner.

Status of the Field Set Bit

On the left side of the data screen 4.2.2, there are 4 field set bits:

- **Filed set bit 1**

- Filed set bit 2
- Filed set bit 3
- Filed set bit 4

Each field set bit has 3 statuses.

Status	Description
0	The output signal is off.
1	The output signal is on.
–	The output signal is related to the machine conditions currently.

Functional test

Prerequisites Make sure that the criteria are obeyed:

- ✓ **Scanner OK**, which is on the right side of the screen, always stays green.
- 1. Make **Field set bits 1 – 4** to be status 0.
 - ⇒ **Protection fields 1 – 3** change to red.
 - ⇒ **Safety Out 1** and **Safety Out 2** change to red after 1 – 2 seconds.
- 2. Make **Field set bit 1** to be status 1, **Field set bit 2 – 4** to be status 0.
 - ⇒ **Protection fields 1 – 3** change to green.
- 3. Make **Field set bit 1 – 3** to be status 1, **Field set bit 4** to be status 0.
 - ⇒ If there are no objects in the protection field, then the **Protection fields 1 – 3** stay green.
 - ⇒ If there is an object in the protection field, then the **Protection fields 1 – 2** change to red.

Result The functional test of the laser scanner is completed.

10 Repair

This chapter contains the information about the repair work of the machine.

10.1 Repair Personnel

Only Rieter approved personnel are permitted to do the repair work at the machine.

10.2 Safety Regulations

The information that follows is the safety regulations that have to be obeyed:

- The machine is at a standstill.
- The main switch is set to the position OFF and the main switch is padlocked.

Risks The risks of injury to the personnel occur during the repair work because of:

- Human error
- Not using the personal protective equipment
- Not sufficient visual contact and communication with the personnel in the danger zone
- Electrical short-circuit



DANGER

The safety devices are removed or bypassed!

Death or dangerous injuries

- ▶ Do NOT remove the installed safety devices.
- ▶ Do NOT bypass the installed safety devices.



WARNING

Turning parts!

Risk of hand injury.

- ▶ Stay away from the machine until the machine is at a standstill.

10.3 Repair Work

This chapter contains the information about how to repair the defective machine parts.

10.3.1 Replacing the Filter Mat

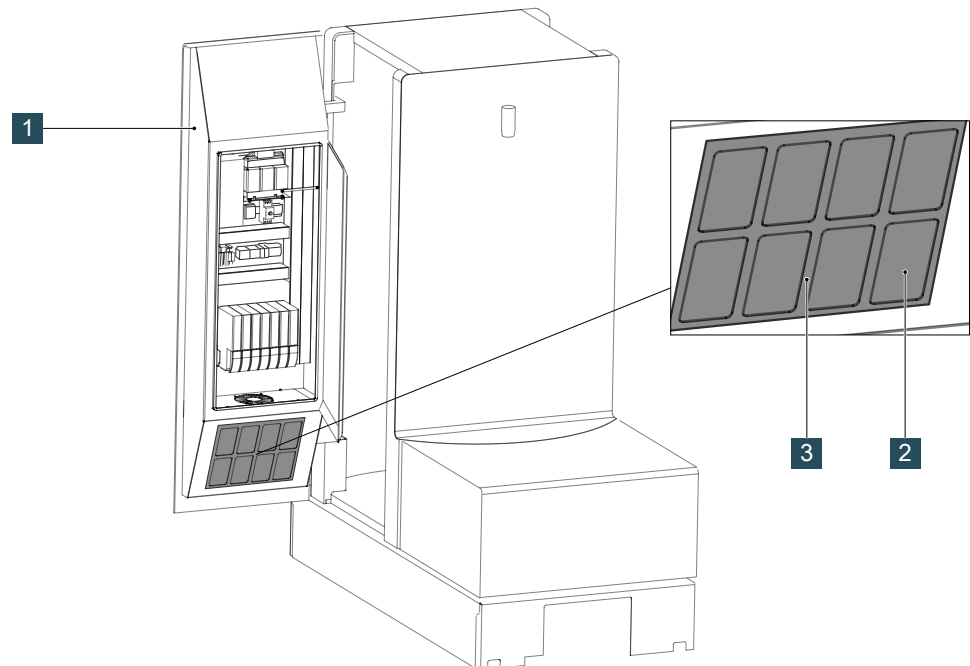


Figure 126: Filter mat

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Open the tower door **1**.
2. Remove the filter mat holder **3**.
3. Replace the filter mat **2**.
4. To discard the dirty filter mat, refer to the local laws and regulations.
5. Install the filter mat holder **3**.
6. Close the tower door **1**.

Result The filter mat is replaced.

10.3.2 Replacing the Barcode Tape

This section gives information about how to replace a damaged barcode tape. The replacement procedure given in this section is only a temporary solution. The damaged barcode tape is to be replaced with a new barcode tape soon.

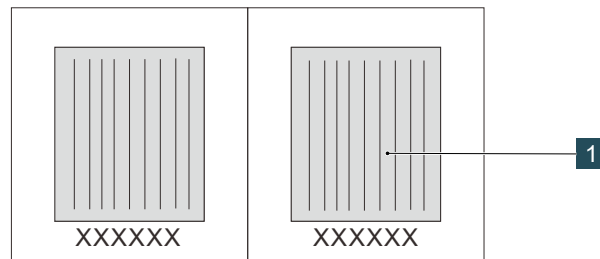


Figure 127: Barcode tape

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- 1. Print the damaged barcode tape **1**.
- 2. Cut the printed barcode tape as the same dimensions of the damaged barcode tape.
- 3. To attach the new barcode tape, clean the location of the damaged barcode tape.
- 4. Attach the printed barcode tape at the same location of the damaged barcode tape.

Result The barcode tape is replaced.

10.3.3 Replacing the Cover Tape

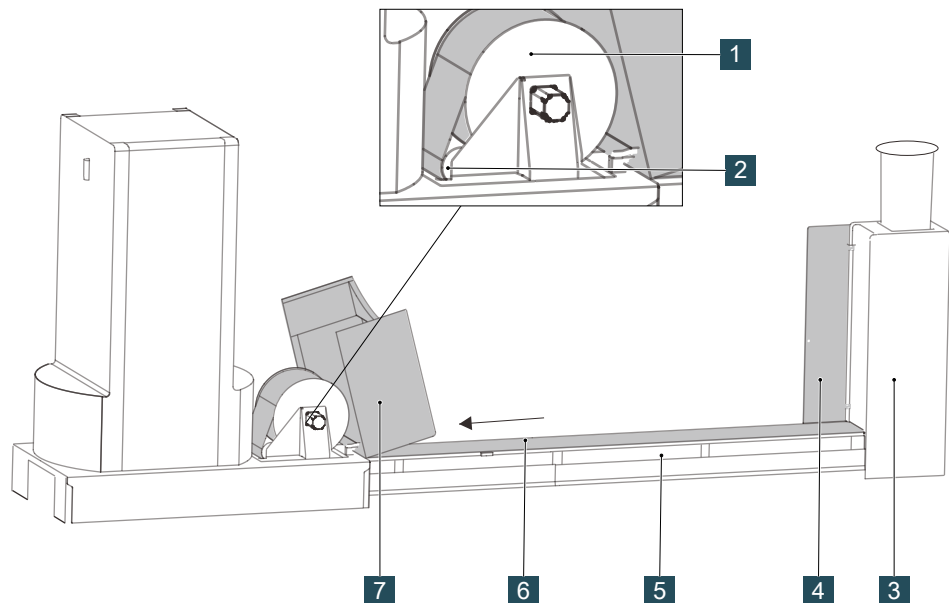


Figure 128: Cover tape

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

1. Open the winder cover hood **7**, and the rear door **4** of the control console **3**.
2. Remove the cover tape **6** from the control console **3**.
3. Remove the cover tape from the winder **1**.
4. Pull 1 end of the new cover tape through the chassis around the guiding roller **2**.
5. Install the end of the new cover tape onto the winder **1**.
6. Wind the new cover tape onto the winder **1** until the open end on the channel **5** is approximately 1 m.
7. Pull the open end of the new cover tape into the control console **3**.
8. Install the new cover tape onto the control console **3**.
9. Close the winder cover hood **7** and the rear door **4**.

Result The cover tape is replaced.

10.3.4 Replacing the Take-off Roller

This section has information about the disassembly procedure and the assembly procedure of the take-off roller.

Disassembly Procedure

Prerequisites Make sure that the criteria are obeyed:
 ✓ The machine is empty.



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

- 2 personnel are necessary to lift and move the heavy machine components.

1. Put the trolley **2** with pallets **3** below the middle of the take-off unit **1**.

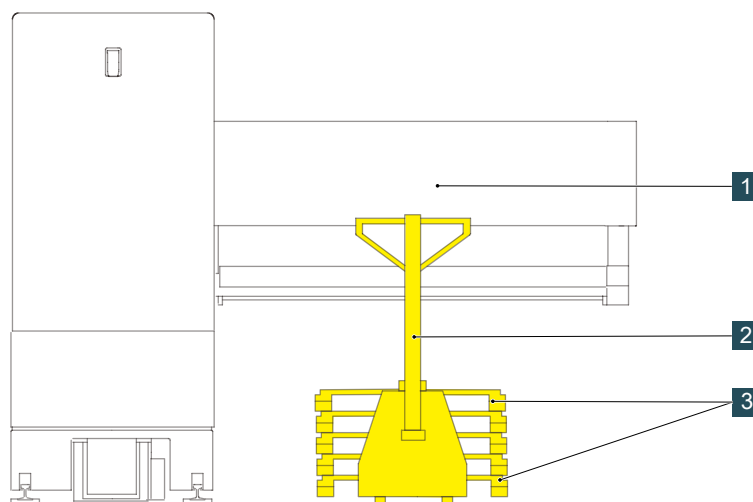


Figure 129: Trolley and pallets

2. Heavy machine components (>25 kg)! Body injury because of the heavy machine components. Lower the take-off unit onto the pallets **3**.
3. Set the main switch to the position OFF. Padlock the main switch.
4. Open the doors on 2 sides of the take-off unit **1**.
5. Open the front door of the take-off unit **1**.
6. Loosen the 4 screws **5**.

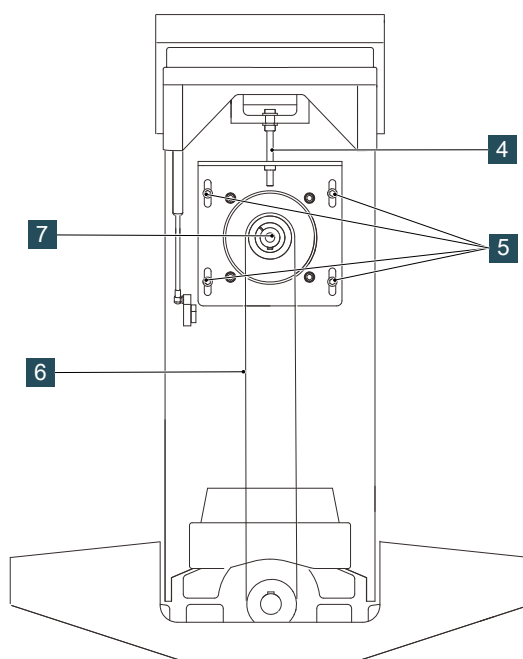


Figure 130: Toothed belt

7. Loosen the screw **4** to lower the toothed belt disk **7**.
⇒ The toothed belt **6** is prepared to be removed.

8. Remove the toothed belt **6**.
9. Remove the 4 screws **8** at the bottom of the take-off unit.

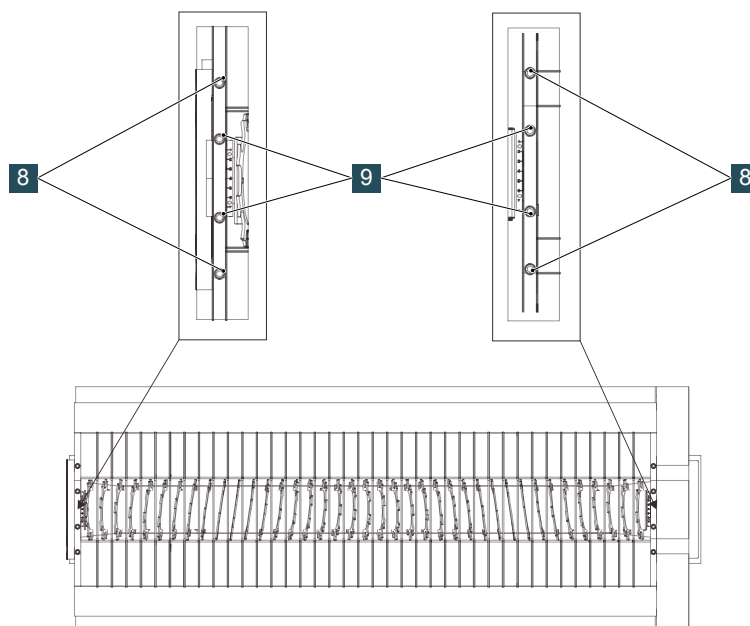


Figure 131: Screws (view from below)

10. Remove the 2 screws **10** on 2 sides of the take-off unit.

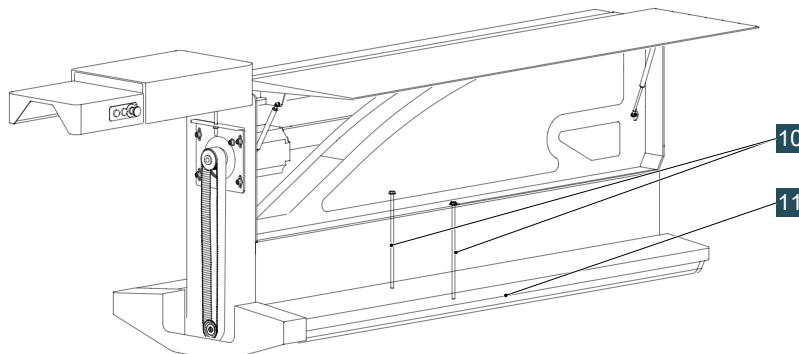


Figure 132: Screws on the 2 sides

11. Lower the floor grid **11** to make sufficient space to replace the take-off roller.
12. Loosen the 6 screws **12** on 1 side of the take-off roller.

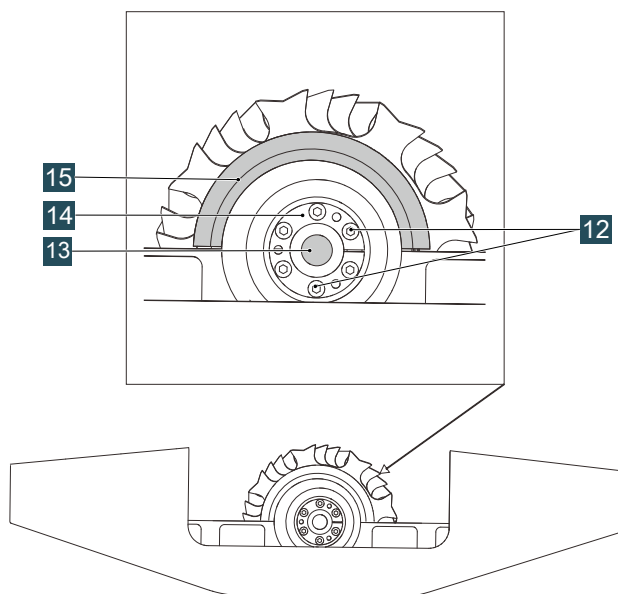


Figure 133: Toothed belt disk

13. Remove the toothed belt disk **14** from the axle **13**.
14. Remove the 4 screws **9**.
15. Remove the 2 flanges **15** on 2 sides of the take-off roller.
16. Remove the take-off roller.
 - ⇒ The take-off roller is removed.

Installation



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

- 2 personnel are necessary to lift and move the heavy machine components.

1. **CAUTION! Heavy machine components (>25 kg)CAUTION! ! Body injury** because of the heavy machine components**CAUTION! .** Install the take-off roller.
2. Put a screwdriver into the holes **18** in the scale disk **16**.

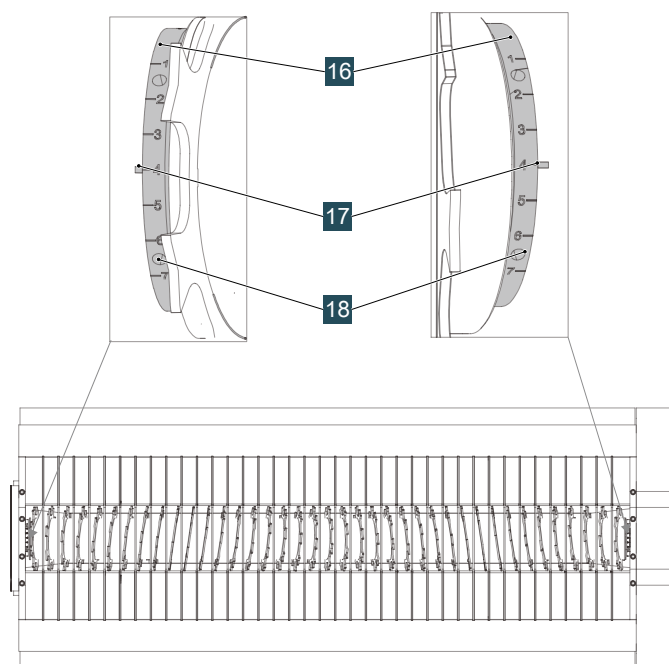


Figure 134: Scale disk (view from below)

3. Turn the scale disk **18** to let the same number (0 – 8 mm) align to the white mark **17** on the 2 sides.
4. Install the 2 flanges **15**.
5. Tighten the 4 screws **9**.

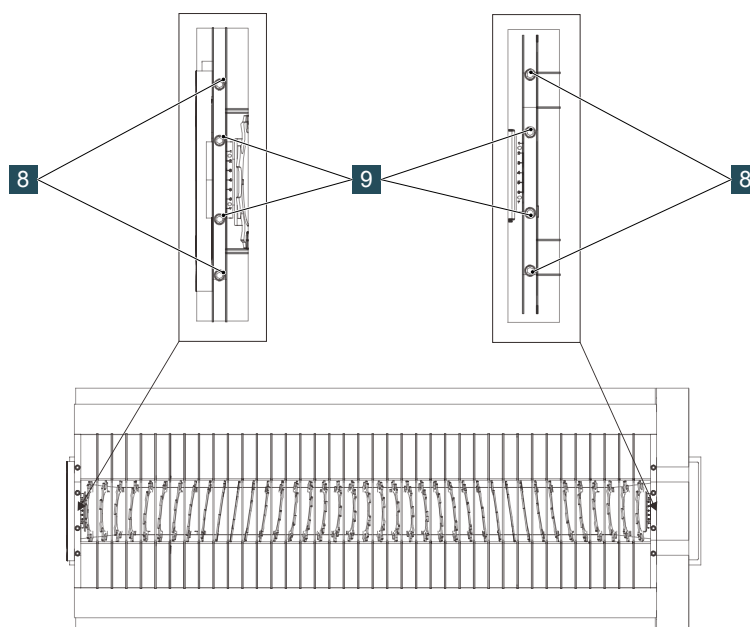


Figure 135: Screws (view from below)

6. Lift the floor grid **11** to the top of the take-off unit.

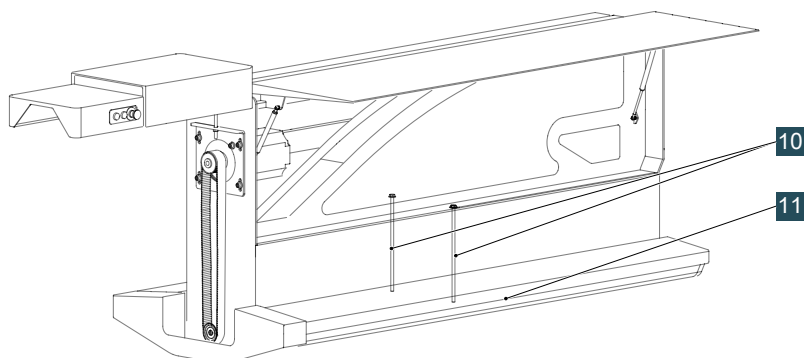


Figure 136: Screws on the 2 sides

7. Tighten the 4 screws **8**.
8. Tighten the 2 screws **10** on the 2 sides of the take-off unit **1**.
9. Install the toothed belt disk **14**.

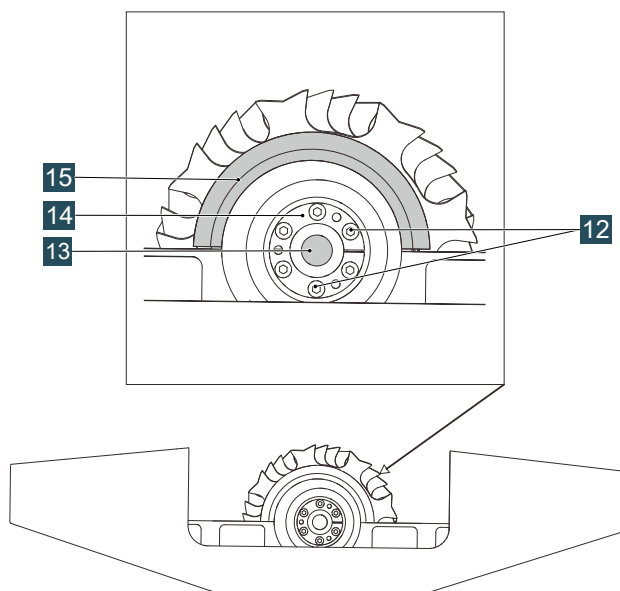


Figure 137: Scale disk

10. Tighten the 6 screws **12**.
11. Install the toothed belt **6**.

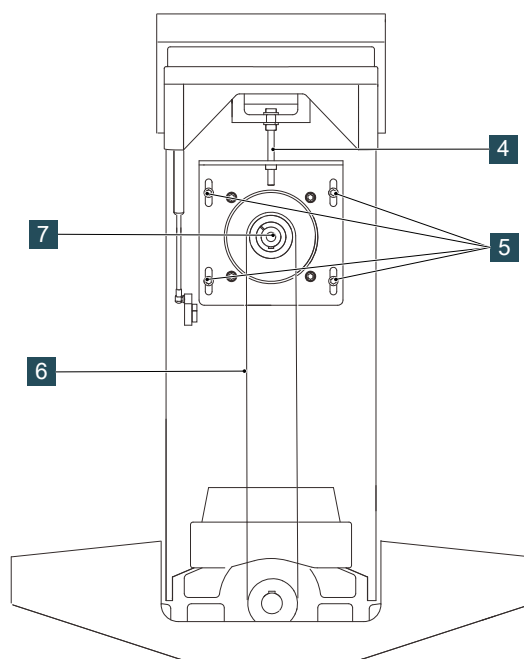


Figure 138: Toothed belt

12. Adjust the screw **4** to make sure that the frequency of the toothed belt tension is 50 – 55 Hz.
13. Tighten the 4 screws **5**.
14. Close the front door of the take-off unit **1**.
15. Close the doors on 2 sides of the take-off unit **1**.
16. Lift the take-off unit.
17. Remove the trolley and the pallets.
⇒ The take-off roller is installed.

Result The take-off roller is replaced.

10.3.5 Replacing the Toothed Belt

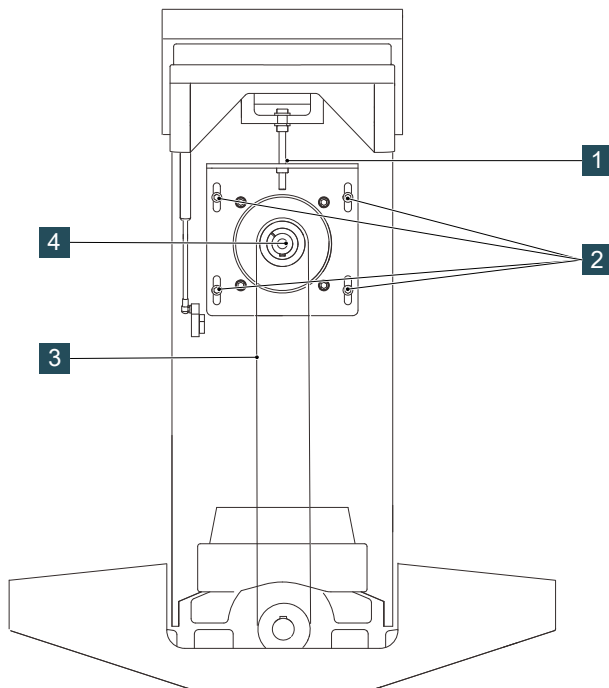


Figure 139: Toothed belt

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- 1. Open the front door of the take-off unit.
- 2. Loosen the 4 screws **2**.
- 3. Loosen the screw **1** to lower the toothed belt disk **4**.
⇒ The toothed belt **3** is prepared to be removed.
- 4. Remove the toothed belt **3**.
- 5. Install the new toothed belt.
- 6. Adjust the screw **1** to make the frequency of the toothed belt tension 50 – 55 Hz.
- 7. Tighten the 4 screws **2**.
- 8. Examine the frequency of the toothed belt tension again.
- 9. If necessary, adjust the tension.
- 10. Close the front door of the take-off unit.

Result The toothed belt is replaced.

10.3.6 Replacing the Guiding Rollers

This section gives information about how to remove and install the guiding rollers. The information is applicable to all 4 guiding rollers. All the 4 guiding rollers are to be replaced at the same time.

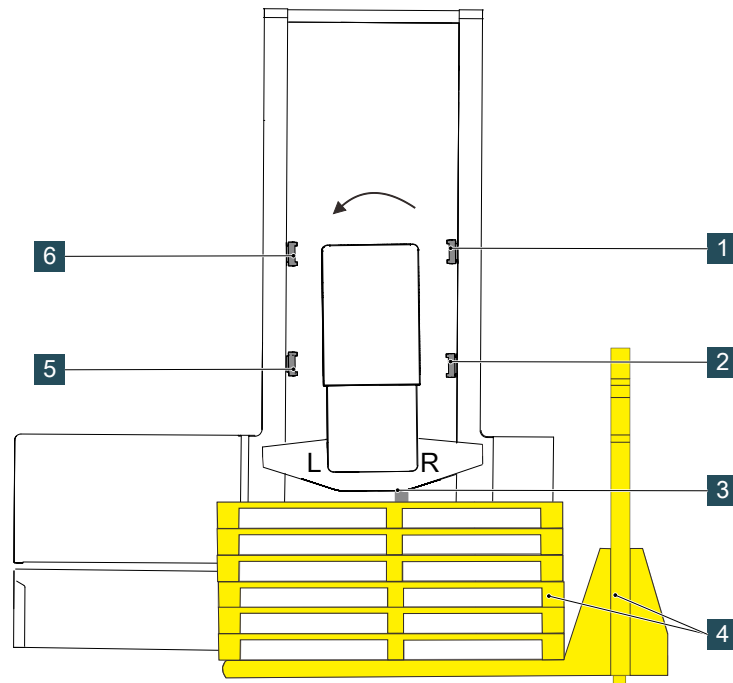


Figure 140: Take-off unit adjustment

Prerequisites Make sure that the criteria are obeyed:

- ✓ Only not damaged wood pallets are used.
- 1. Put the trolley and the pallets **4** below the take-off unit.
- 2. Put the wooden stick **3** below the left side of the take-off unit to replace the top-left guiding roller **6** and the bottom-right guiding roller **2**.
- 3. Put the wood stick **3** below the right side of the take-off unit to replace the top-right guiding roller **1** and the bottom-left guiding roller **5**.
- 4. Lower the take-off unit onto the wood stick **3** (see the data screen 4.2.3.)
- 5. Use a distance tool to examine if the target guiding roller touches the tower hull.
- 6. Adjust the position of the wooden stick until the target guiding roller does not touch the tower hull and the take-off unit pressure is less than 600 kg.
- 7. Set the main switch to the 0 position and padlock the main switch.
- 8. Loosen the 4 screws **7** on the guiding roller.
- 9. Remove the guiding roller.

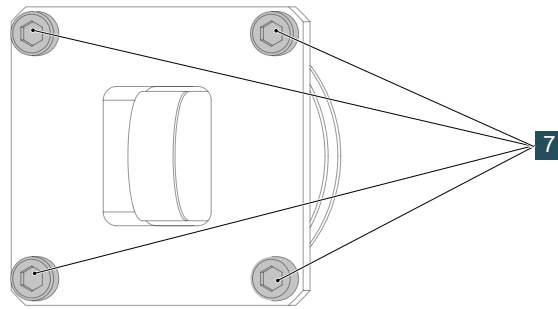


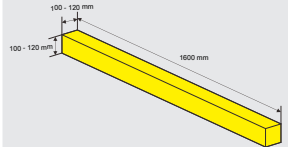
Figure 141: Guiding roller replacement

10. Install the new guiding roller.

Result The guiding roller is replaced.

10.3.7 Replacing the Spindle and the Load Cell

This section gives information about how to remove and install the spindle and the load cell.

Tool	Tool Name	Function Description
	Distance bar	The distance bar is used to keep the distance between machine components.

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- ✓ A distance bar is to be used.



WARNING

Heavy weight!

Severe injury or death if the take-off unit falls down

- Do not stay under the take-off unit when you do the repair work.

1. Open the tower door.
2. Loosen the 4 screws **1**.
3. Make the distance between the screws **1** and the flange plate **2** approximately 10 mm.

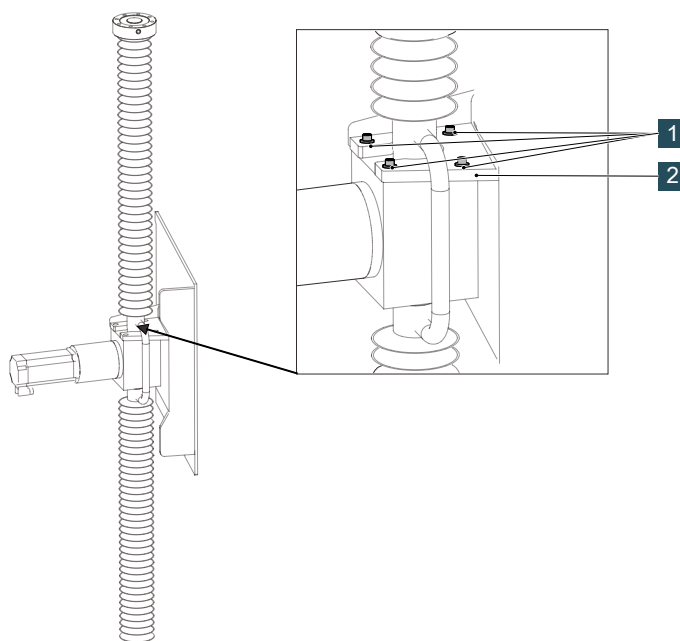


Figure 142: Drive attachment screws

4. Close the tower door.
5. Set the main switch to the ON position to start the machine.
6. Move up the take-off unit to the highest position (1 600 mm).

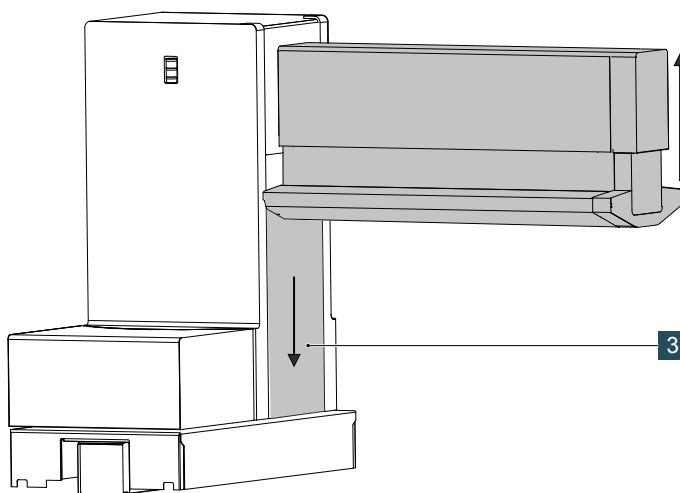


Figure 143: Take-off unit at top position

7. Set the main switch to the OFF position and padlock the main switch.
8. Lower the bottom front cover **3**.
9. Remove the bottom front cover **3**.
10. Remove the roller of the bottom front cover **3**.

11. **WARNING! Heavy weight! Severe injury or death if the take-off unit falls down.** Put the distance bar **5** between the flange plate **6** and the chassis.
12. Make sure that the position of the distance bar **5** is accurately in the front of the spindle.

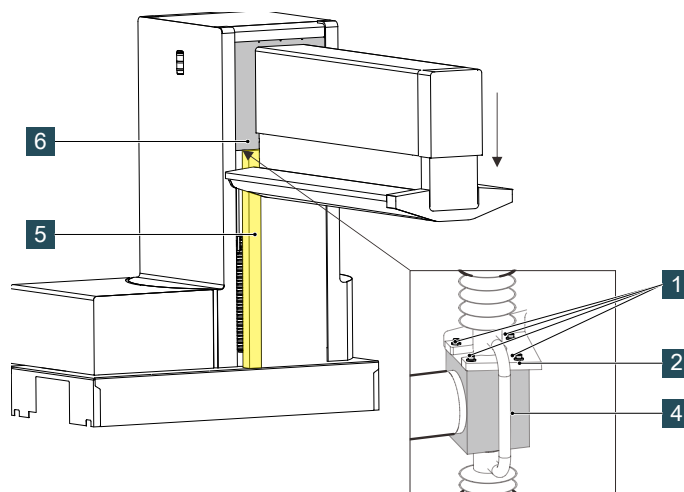


Figure 144: Spindle gearbox

13. To start the machine, set the main switch to the position ON.
14. Slowly lower the take-off unit onto the distance bar **5**.
15. Make sure that the distance between the 4 screws **1** and the flange plate **2** is the same.
16. Make sure that the distance between the flange plate **2** and the drive gearbox **4** of the take-off unit is the same.
17. Make sure that all the weight of the take-off unit is on the distance bar **5**.
18. Put the pallets below the middle of the take-off unit to hold the take-off unit.
19. Make sure that the pallets are materials that are supplied with the take-off unit by Rieter.
20. Make sure that the distance between the pallets and the take-off unit is approximately 5 cm.

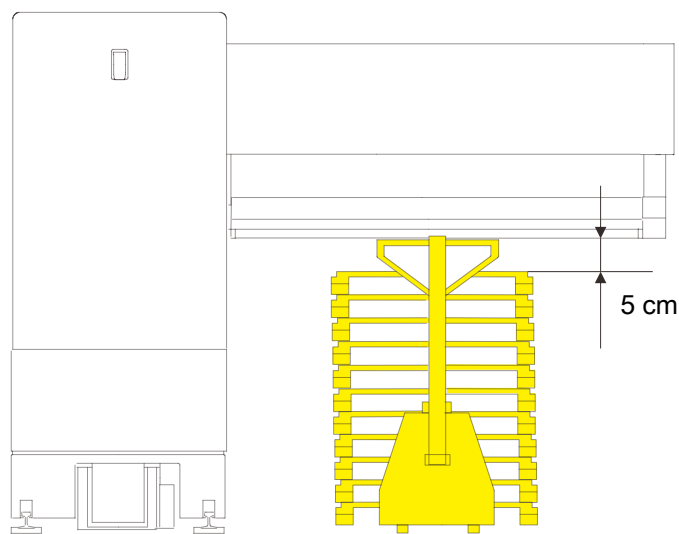


Figure 145: Pallets

Result The spindle is prepared to be removed.

Removal Procedure

1. Open the tower door.
2. Disconnect all the cables that are connected to the load cell **7** and the motor **8**.

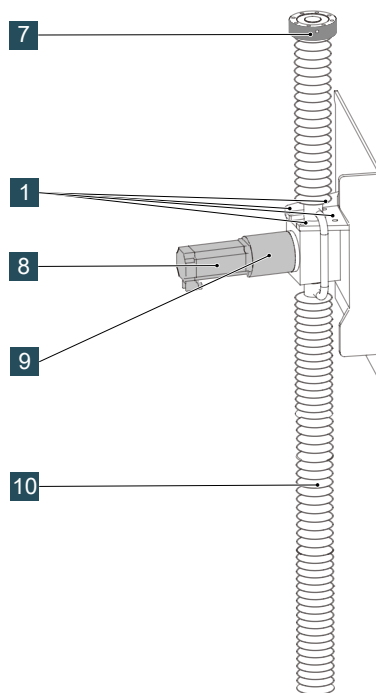


Figure 146: Spindle

3. Remove the motor **8** and the motor fastening **9**.

4. Remove the 4 screws **1** and washers.
5. Remove the spindle **10** from the flange plate.
6. Turn the coupling **11** by hand to lower the drive gearbox of the take-off unit.

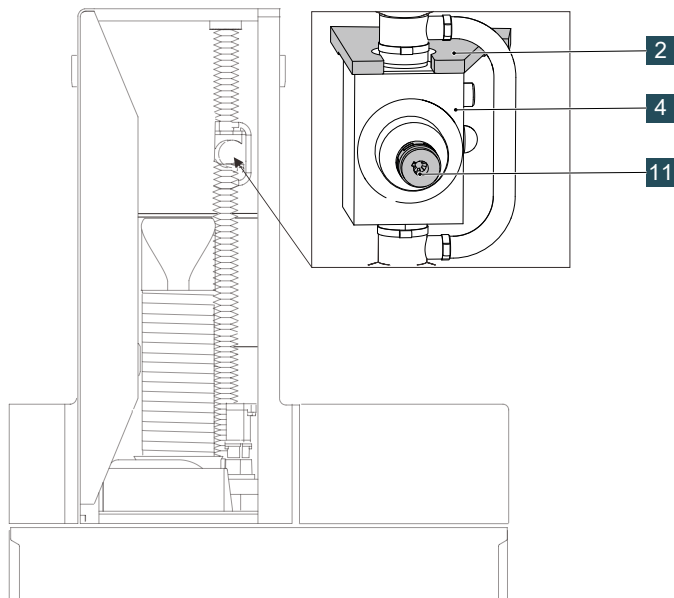


Figure 147: Spindle with flange assembly

7. Make the distance between the flange plate **2** and the drive gearbox of the take-off unit **4** 10 – 15 mm.
8. Hold the bottom of the spindle **10**.
9. Loosen the screws on the load cell **7** to remove the spindle and the load cell.

Result The spindle and the load cell are removed.

Installation Procedure

1. Install 2 new bellows **13** onto the new spindle.

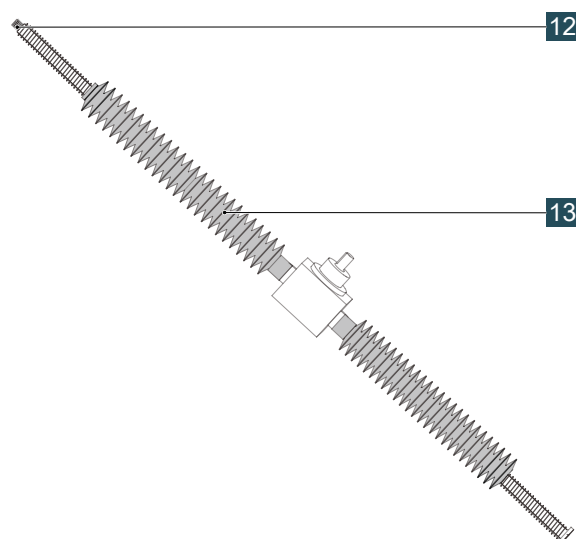


Figure 148: Spindle with bellows

2. Clean the screw threads **12**.
3. Apply the thread-locking adhesive (Loctite 243) on the screw threads **12**.
4. Install the new load cell **7**.

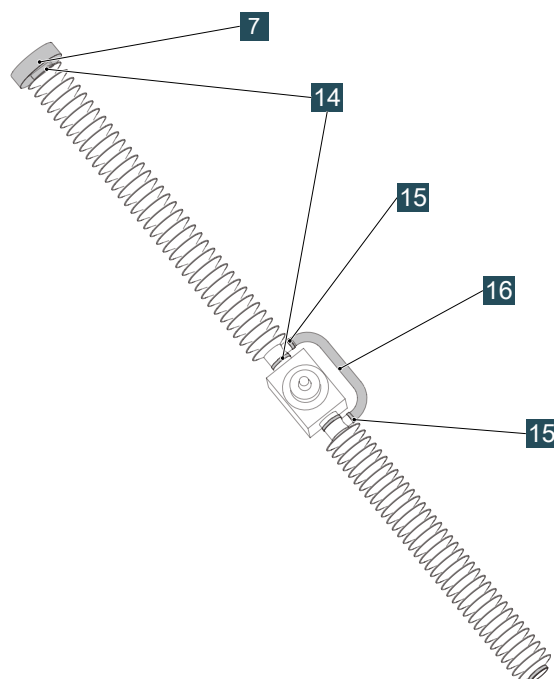


Figure 149: Spindle with pipe

5. Tighten the clamps **14** to lock the bellows.
6. Install the pipe **16**.
7. Tighten the clamps **15**.

8. Tighten the screws on the load cell **7**.
⇒ The new spindle and the new load cell are connected.
9. Turn the coupling **11** by hand to lift the drive gearbox of the take-off unit **4**.

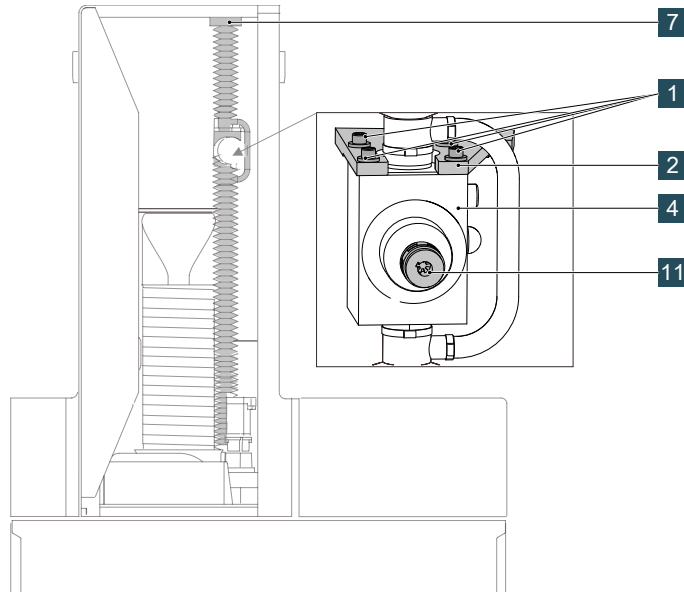


Figure 150: Spindle with load cell

10. Make sure that no distance is there between the flange plate **2** and the drive gearbox **4** of the take-off unit.
11. Tighten the 4 screws **1** and the washers.
12. Install the motor **8** and the motor fastening **9**.
13. Connect all the cables to the load cell and the motor.
14. Close the tower door.
15. Set the main switch to the position ON.
16. Slowly move up the take-off unit approximately 10 mm.
17. **WARNING! Heavy weight! Severe injury or death if the take-off unit falls down.** Remove the distance bar **5**.
⇒ The tool distance bar is removed.
18. Set the take-off unit in the data screen 4.3.1.

Result The installation of the spindle and the load cell is completed.

10.3.8 Replacing the Revolving Device

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
1. Open the tower door.
 2. Loosen the clamp **1**.

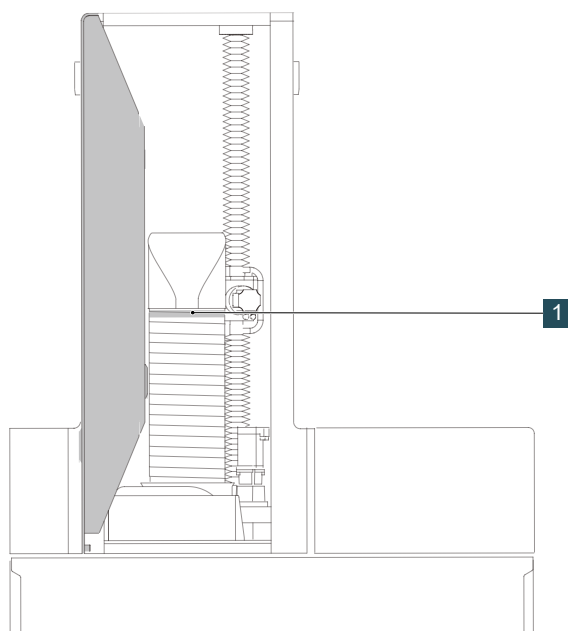


Figure 151: Revolving device

3. Loosen the screws **2** to disconnect the revolving device from the tower.

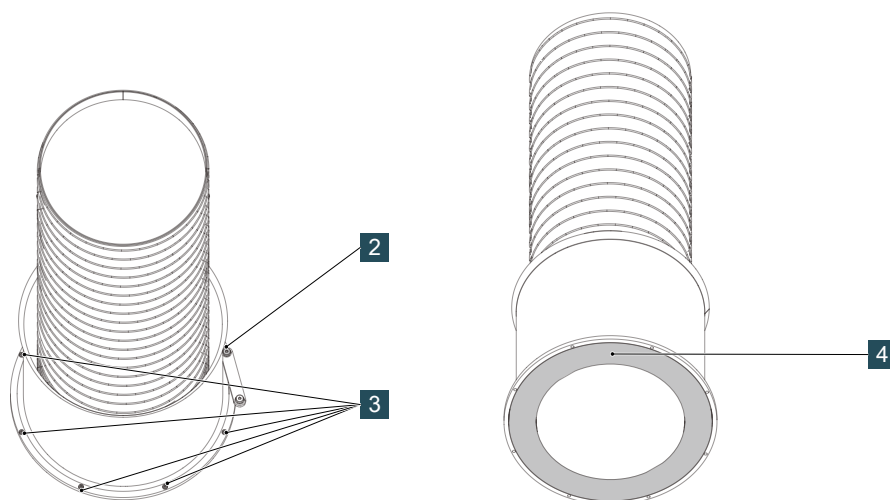


Figure 152: Revolving device assembly

4. Loosen all screws **3** to remove the revolving device from the chassis.
5. Remove the revolving device ring **4**.
6. Loosen all the screws **6** to disconnect the hose **5**.

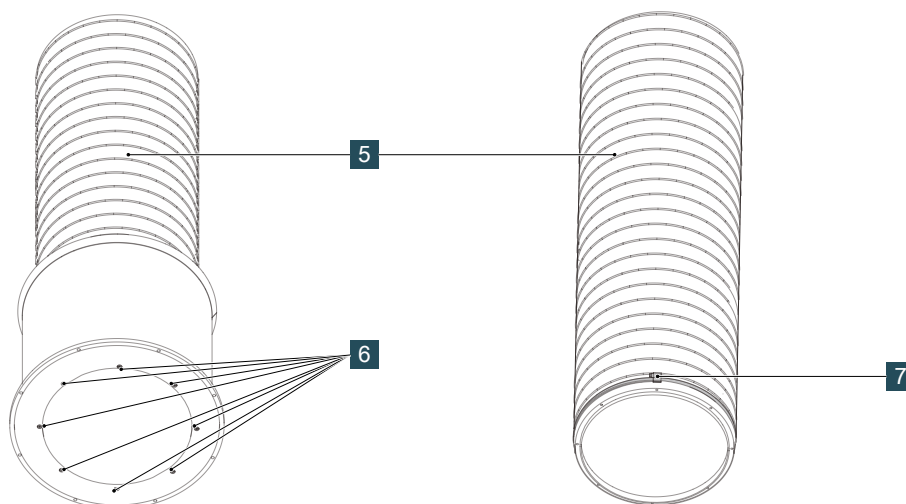


Figure 153: Hose

7. Loosen the clamp **7** to remove the hose **5**.
8. Install all the parts of new revolving device.
9. Install all screws **3** to attach the new revolving device onto the chassis.
10. Tighten the screws with a tightening torque of 1.5 Nm.
11. Tighten the screw **2** to connect the new revolving device with the tower.
12. Install the hose **5**.
13. Close the tower door.

Result The revolving device is replaced.

10.3.9 Replacing the Proximity Safety Switches

This section gives information about the replacement of the proximity safety switches. The removal procedure and the installation procedure given in the operation manual are applicable all safety magnetic proximity switches.

10.3.9.1 Winder Cover Hood

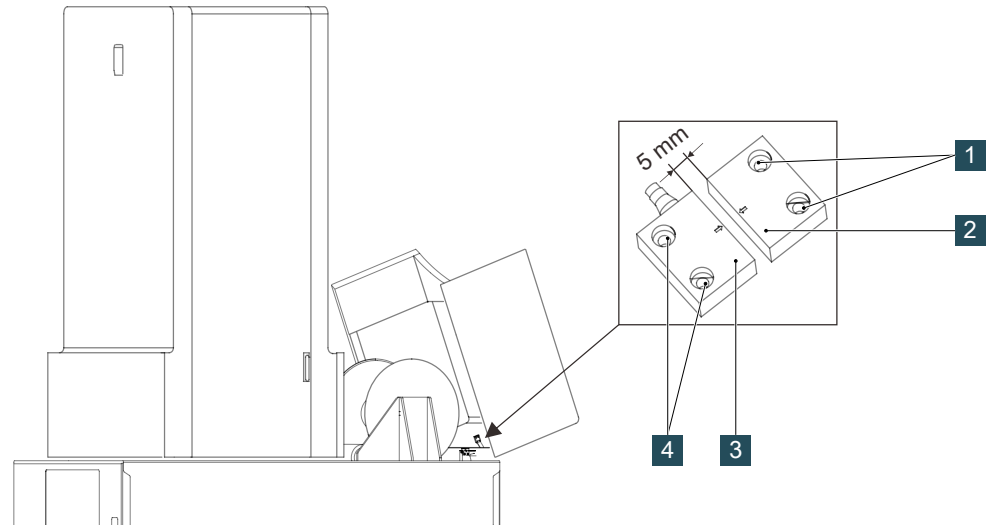


Figure 154: Winder safety switch

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- 1. Open the winder cover hood.
- 2. Disconnect the cable that is connected to the safety switch **2** and **3**.
- 3. Loosen the screws **1** and **4** to remove the safety switch **2** and **3**.
- 4. Install the new safety switches.
- 5. Make the distance between the 2 safety switches approximately 5 mm when the winder cover hood is closed.
- 6. Connect the cable to the new safety switches.
- 7. Close the winder cover hood.
- 8. To start the machine, set the main switch to the position ON.
- 9. Do a function test of the safety switch in the data screen 1.2.6. See *Safety Switches* ▶ 175

Result The proximity safety switch of the winder cover hood is replaced.

10.3.9.2 Tower Door

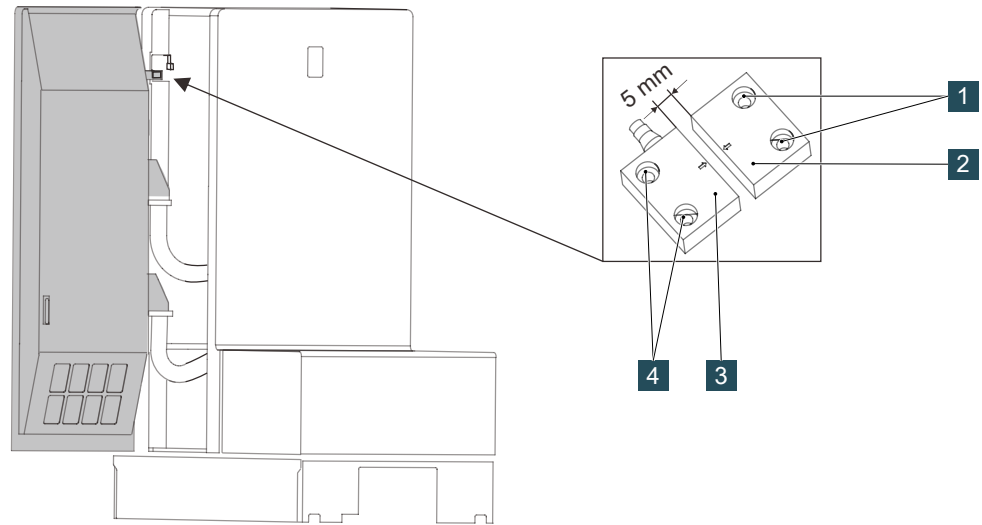


Figure 155: Tower safety switch

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- 1. Open the tower door.
- 2. Disconnect the cable that is connected to the safety switch **2** and **3**.
- 3. Loosen the screws **1** and **4** to remove the safety switch **2** and **3**.
- 4. Install the new safety switches.
- 5. Make the distance between the 2 safety switches approximately 5 mm when the tower door is closed.
- 6. Connect the cable to the new safety switches.
- 7. Close the tower door.
- 8. To start the machine, set the main switch to the position ON.
- 9. Do a function test of the safety switch in the data screen 1.2.6. See *Safety Switches* ▶ 175

Result The safety switch of the tower door is replaced.

10.3.9.3 The Front Door of the Take-off Unit

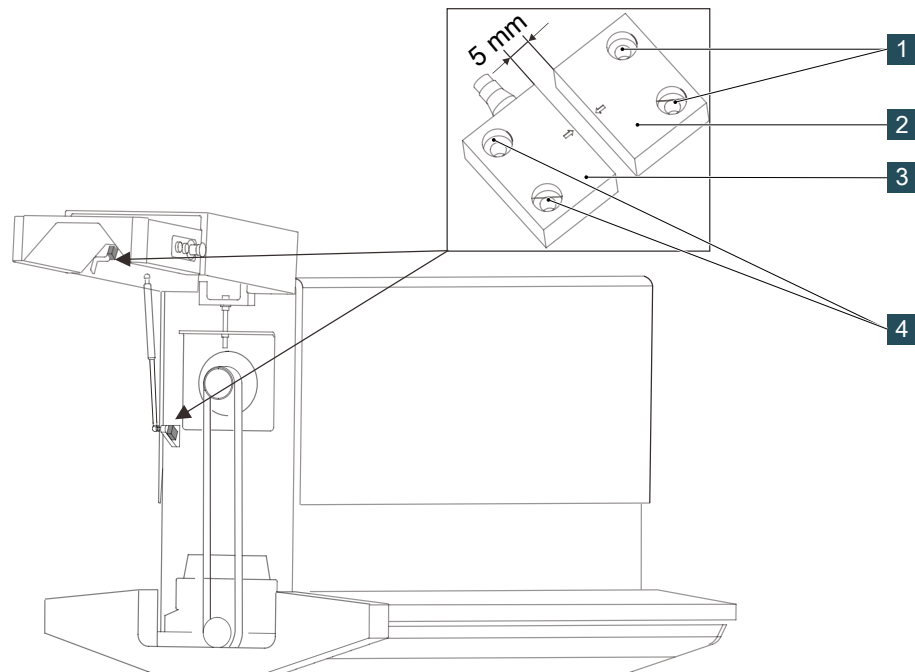


Figure 156: Safety switch of front door

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
- 1. Open the front door of the take-off unit.
- 2. Disconnect the cable that is connected to the safety switch **2** and **3**.
- 3. Loosen the screws **1** and **4** to remove the safety switch **2** and **3**.
- 4. Install the new safety switch.
- 5. Make the distance between the 2 safety switches approximately 5 mm when the front door is closed.
- 6. Connect the cable to the new safety switches.
- 7. Close the front door of the take-off unit.
- 8. Set the main switch to the position ON.
- 9. Start the machine.
- 10. Do a function test of the safety switch in the data screen 1.2.6. See *Safety Switches* ▶ 175

Result The safety switch in the front door of the take-off unit is replaced.

10.3.9.4 Safety Flaps of Take-off Unit

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.

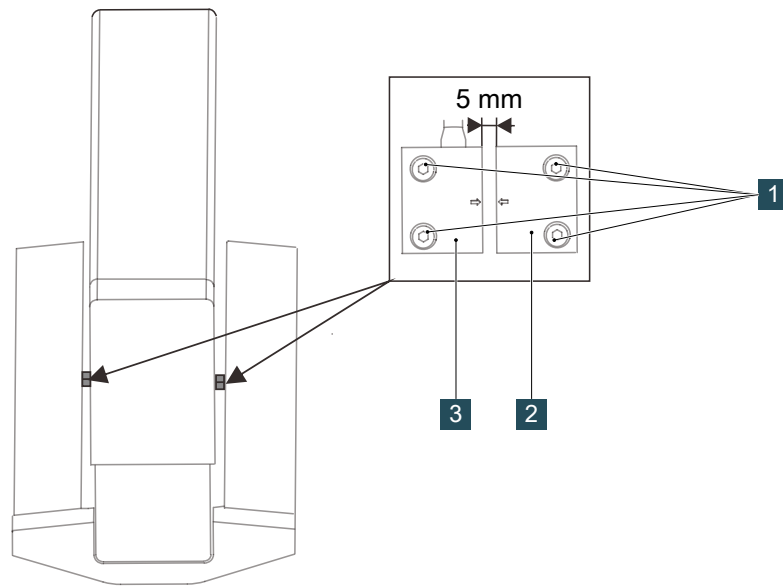


Figure 157: Safety flaps of take-off unit

1. Disconnect the cable that is connected to the safety switch **2** and **3**.
2. Loosen the screws **1** to remove the safety switch **2** and **3**.
3. Install the new safety switches.
4. Make the distance between the 2 safety switches approximately 5 mm when the safety flap is not pushed in.
5. Connect the cable to the new safety switches.
6. Set the main switch to the ON position.
7. Start the machine.
8. Do a function test of the safety switch in the data screen 1.2.6. See *Safety Switches* ► 175

Result The safety switch on the safety flap of the take-off unit is replaced.

10.3.9.5 Safety Flaps of Chassis

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
1. Open the safety flap **2** of the chassis.

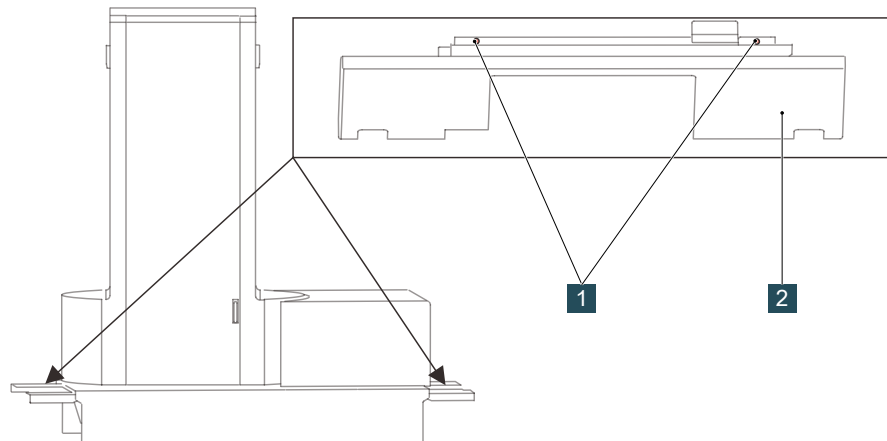


Figure 158: Safety flaps

2. Disconnect the cable that is connected to the safety switch 4 and 5.

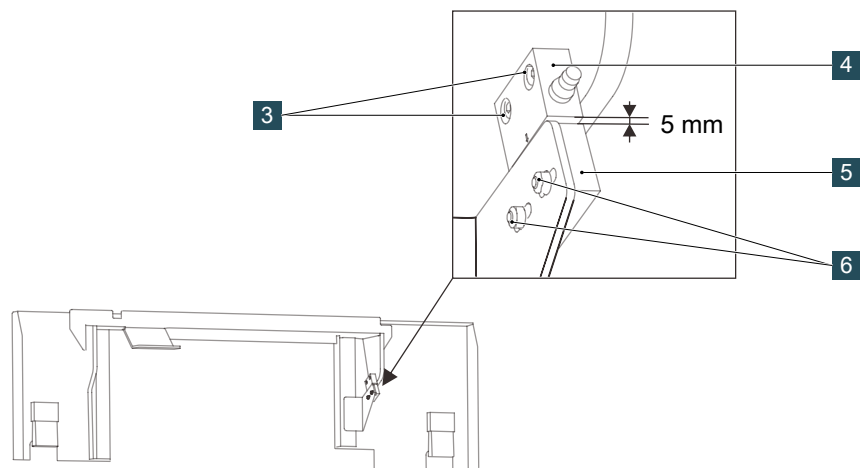


Figure 159: Chassis safety flap

3. Loosen the screws 1 to remove the safety flap.
4. Loosen the screws 3 and 6 to remove the safety switch 4 and 5.
5. Install the new safety switches.
6. Make the distance between the 2 safety switches approximately 5 mm when the safety flap is closed.
7. Install the safety flap to the chassis.
8. Connect the cable to the new safety switches.
9. Close the safety flap.
10. To start the machine, set the main switch to the position ON.
11. Do a function test of the safety switch in the data screen 1.2.6. See *Safety Switches* ▶ 175

Result The safety switch on the safety flaps of chassis is replaced.

10.3.10 Replacing the Drives

This section gives information about how to remove and install the different drives in the machine.

10.3.10.1 Replacing the Winder Drive

Prerequisites Make sure that the criteria are obeyed:
✓ The main switch is set to the OFF position and padlocked.



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

- 2 personnel are necessary to lift and move the heavy machine components.

1. Open the winder cover hood **1**.

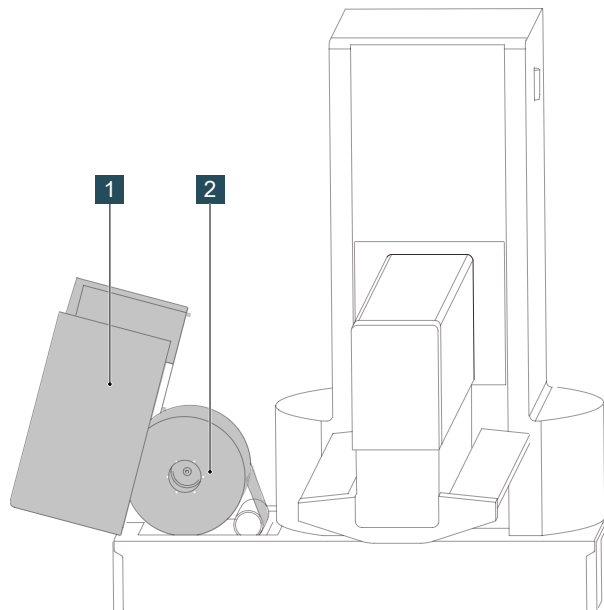


Figure 160: Winder drive

2. Disconnect all the cables connected to the drive.
3. Loosen the screw **2**.
4. **CAUTION! Heavy machine components (>25 kg)! Body injury because of the heavy machine components.** Pull the winder **7** to the left side until the screw **5** shows.

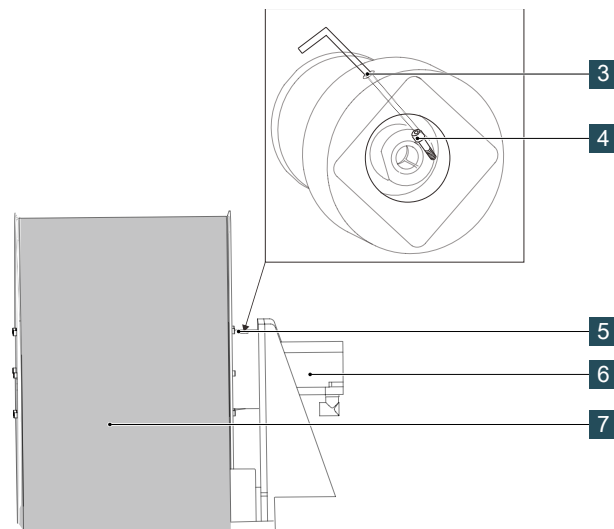


Figure 161: Winder motor

5. Remove the screw **5**.
6. Turn the winder to loosen the screw **4** in the hole **3**.
7. Loosen the screw **4**.
8. Remove the drive **6**.
9. Install the new drive.
10. Adjust the winder to tighten the screw **4**.
11. Install the screw **5**.
12. **CAUTION! Heavy machine components (>25 kg)! Body injury because of the heavy machine components.** Pull the winder **7** back to the initial position.
13. Tighten the screw **2**.
14. Connect all the cables to the new drive.
15. Close the winder cover hood **1**.

Result The winder drive is replaced.

10.3.10.2 Replacing the Tower Drive

- Prerequisites** Make sure that the criteria are obeyed:
- ✓ The main switch is set to the OFF position and padlocked.
1. Open the tower door.
 2. Disconnect all the cables that are connected to the drive **1**.

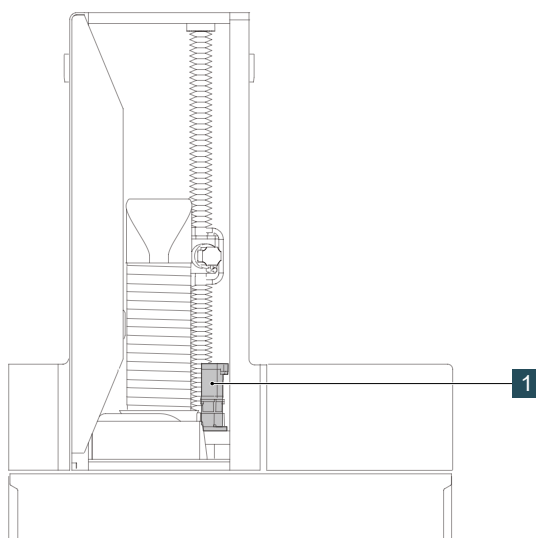


Figure 162: Tower drive

3. Remove the drive **1**.
4. Remove the coupling **2**.

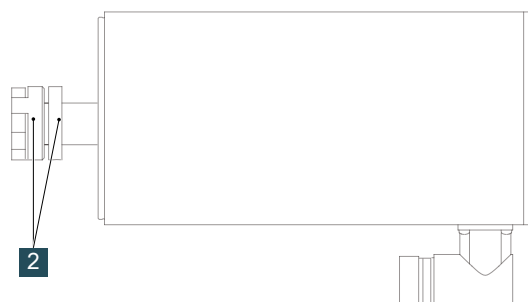


Figure 163: Tower drive coupling

5. Install the coupling onto the new drive.
6. Install the new drive.
7. Connect all the cables to the new drive.
8. Close the tower door.
9. To start the machine, turn the main switch to the position ON.
10. Set the tower in the data screen 4.2.3.

Result The tower drive is replaced.

10.3.10.3 Replacing the Lift Drive of the Take-off Unit

1. Lower the take-off unit **1** onto the pallets **2**.

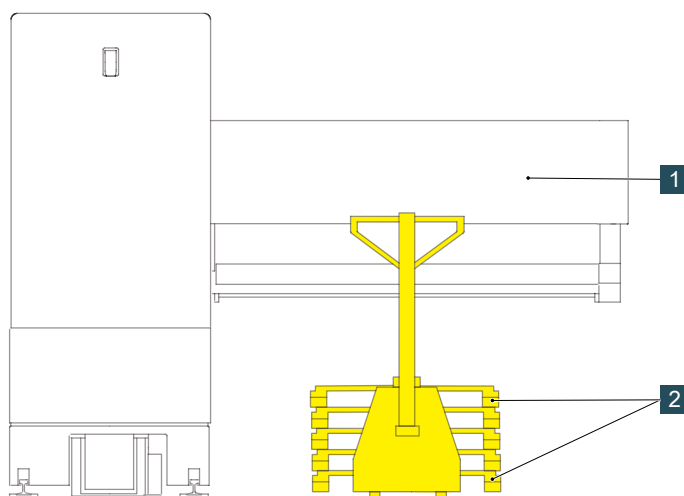


Figure 164: Pallets

2. Set the main switch to the position OFF and padlock the main switch.
3. Open the tower door.
4. Disconnect all the cables that are connected to the lift drive **3**.

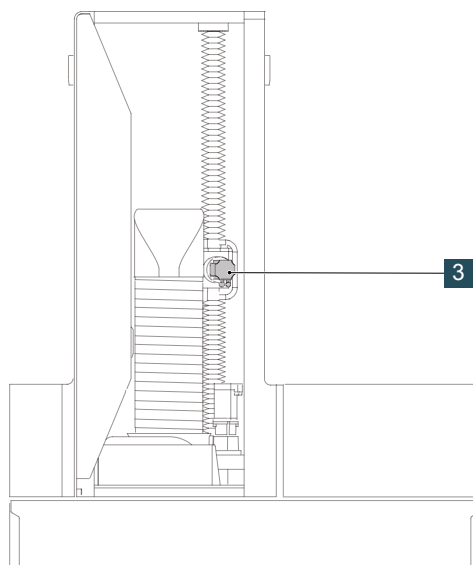


Figure 165: Lift drive motor

5. Remove the drive.
6. Remove the coupling **4**.

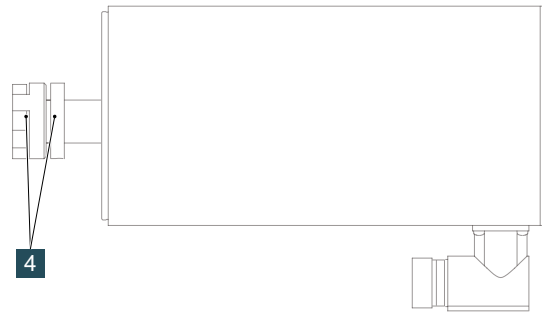


Figure 166: Drive motor coupling

7. Install the coupling onto the new drive.
8. Install the new drive.
9. Connect all the cables to the new drive.
10. Close the tower door.
11. Remove the pallets **2**.
12. To start the machine, set the main switch to the position ON.
13. Set the take-off unit in the data screen 4.3.1.

Result The lift drive of the take-off unit is replaced.

10.3.10.4 Replacing the Take-off Roller Drive

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

- 2 personnel are necessary to lift and move the heavy machine components.

1. Open the side doors and the front door of the take-off unit.
2. Disconnect all the cables that are connected to the drive **1**.

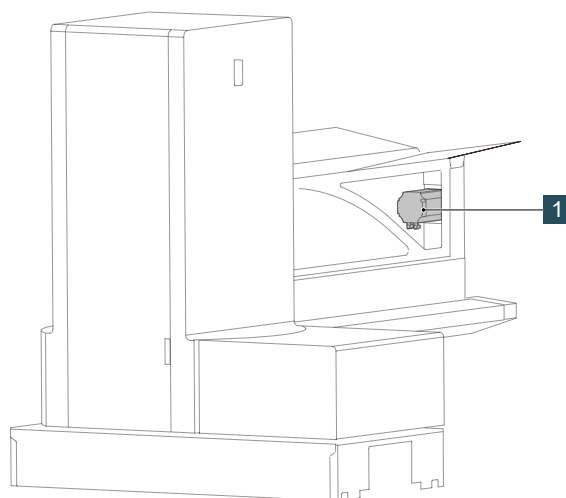


Figure 167: Take-off roller drive

3. Loosen the 4 screws **3**.

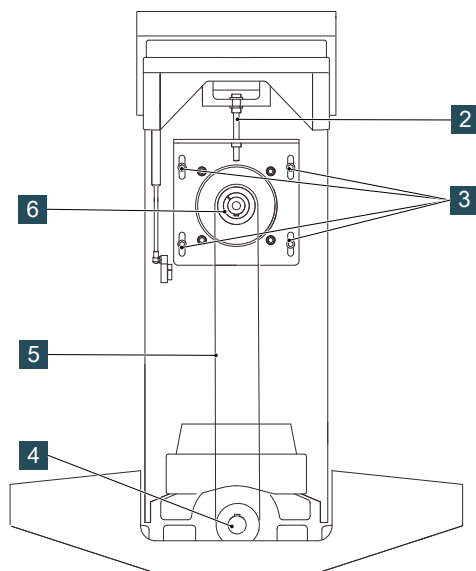


Figure 168: Front view of the take-off unit

4. Loosen the screw **2** to lower the toothed belt disk **6**.
⇒ The toothed belt **5** can be removed.
5. Remove the toothed belt **5**.
6. Loosen the 6 screws **8**.

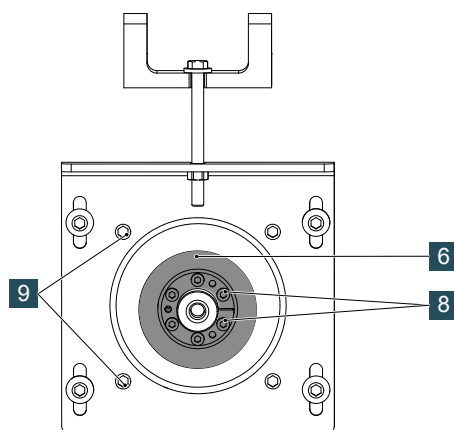


Figure 169: Coupling

7. Remove the toothed belt disk **6**.
8. Loosen the 4 screws **9**.
9. **CAUTION! Heavy machine components (>25 kg). Body injury because of the heavy machine components.** Remove the drive.

Result Drive is removed.

Assembly Procedure



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

- 2 personnel are necessary to lift and move the heavy machine components.

1. **CAUTION! Heavy machine components (>25 kg). Body injury because of the heavy machine components.** Put the new drive into the take-off unit.
2. Tighten the 4 screws **9** to install the new drive.
3. Tighten the 6 screws **8** to install the toothed belt disk **6**.
4. Install the toothed belt **5**.
5. Adjust the screw **2** to tighten the toothed belt.
6. Tighten the 4 screws **3**.
7. Connect all the cables to the new drive.
8. Close the front door and the side doors.

Result The drive of the take-off roller is replaced.

10.3.10.5 Replacing the Chassis Drive

Prerequisites Make sure that the criteria are obeyed:
 ✓ The main switch is set to the OFF position and padlocked.



CAUTION

Heavy machine components (>25 kg)!

Body injury because of the heavy machine components

► 2 personnel are necessary to lift and move the heavy machine components.

1. Open the rear safety flap **1** of the chassis.

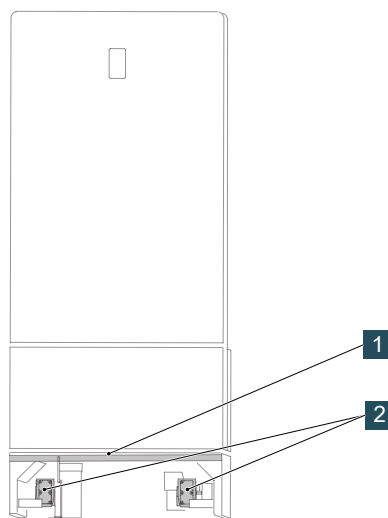


Figure 170: Chassis drive

2. Disconnect all the cables that are connected to the drives **2**.
3. **CAUTION! Heavy machine components (>25 kg)! Body injury because of the heavy machine components.** Loosen screws **3** and **4** to remove the gearbox and drive from the chassis.

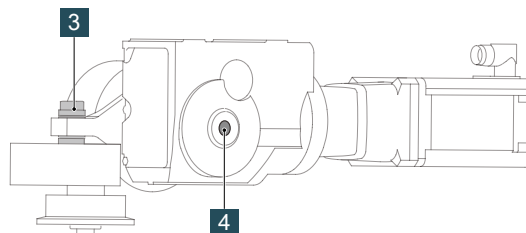


Figure 171: Chassis drive

4. Loosen the 4 screws **5** to remove the drive.

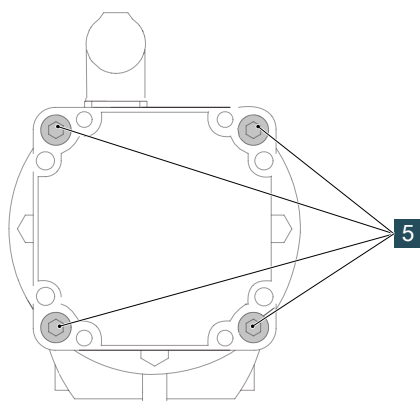


Figure 172: Screws

5. Remove the coupling **6** of the chassis drive.

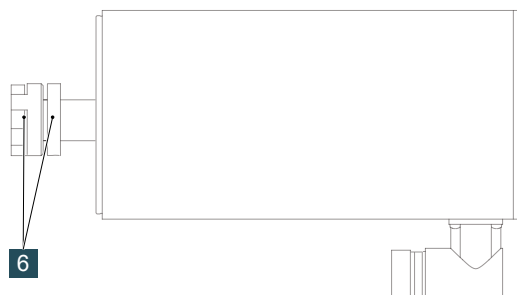


Figure 173: Coupling

6. Install the coupling onto the new drive.
7. Install a new drive onto the gearbox.
8. **CAUTION! Heavy machine components (>25 kg)! Body injury because of the heavy machine components.** Install the new drive and the gearbox onto the chassis.
9. Connect all the cables to the new drive.
10. Close the rear safety flap of the chassis.

Result The chassis drive is replaced.

10.3.11 Replacing the Laser Scanner

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the position OFF and the main switch is padlocked.
1. Open the front door of the take-off unit.
 2. Disconnect the cable that is connected to the laser scanner **2**.

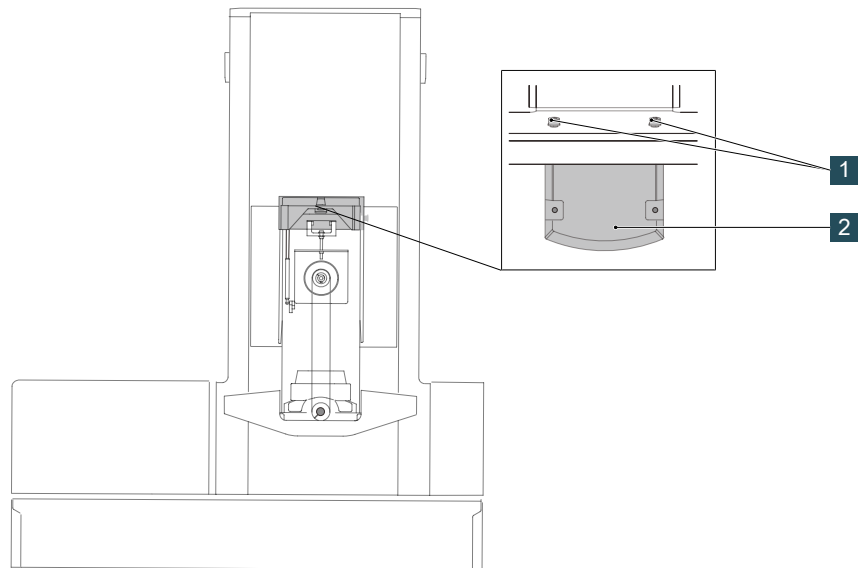


Figure 174: Laser scanner

3. Loosen the 2 screws **1** to remove the laser scanner **2**.
4. Install the new laser scanner.
5. Connect the cable to the new laser scanner.
6. Close the front door of the take-off unit.
7. Set the main switch to the ON position and start the machine.
8. Do a function test of the laser scanner in the data screen 4.2.2. See *Laser Scanner* ► 175

Result The laser scanner is replaced.

10.3.12 Replacing the Optical Linear Measurement Sensor

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
1. Open the rear safety flap of the chassis.
 2. Disconnect all the cables that are connected to the optical linear measurement sensor **2**.

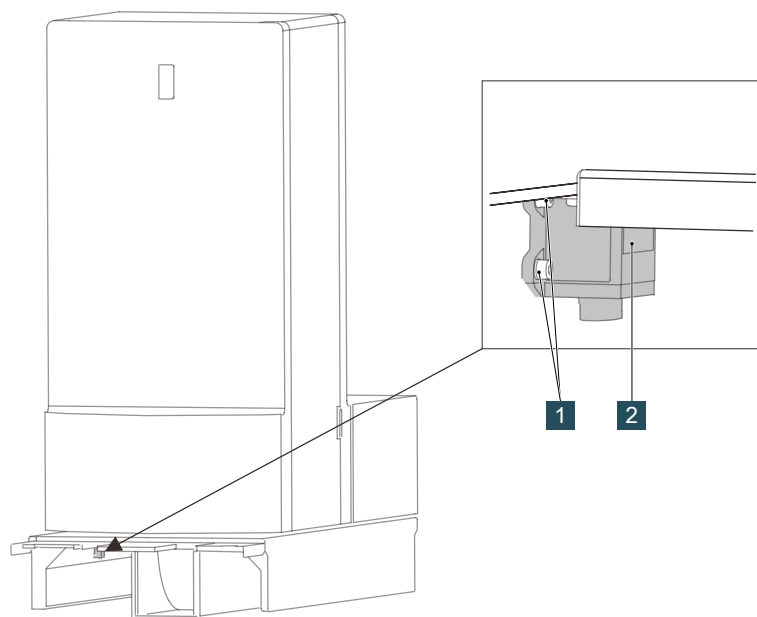


Figure 175: Optical linear measurement (OLM) sensor

3. Loosen the 4 screws **1** to remove the optical linear measurement sensor **2**.
4. Assemble the new optical linear measurement sensor.
5. Adjust the optical linear measurement sensor to make it parallel to the barcode tape **3**.

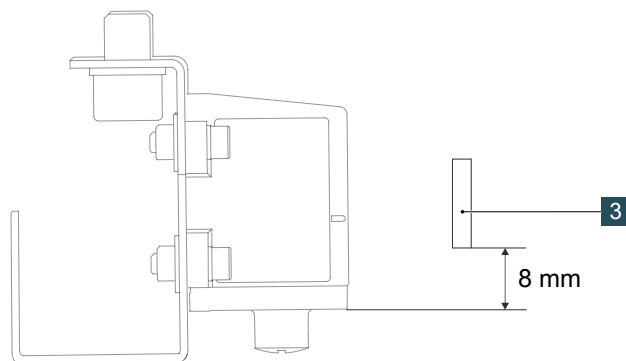


Figure 176: Distance between OLM sensor and tape

6. Adjust the optical linear measurement sensor.
 - ⇒ An 8 mm distance is made between the optical linear measurement sensor bottom and the barcode tape bottom.
7. Tighten all screws to attach the new optical measurement sensor.
8. Connect all the cables to the new optical measurement sensor.
9. Set the main switch to the ON position and start the machine.
10. Do an optical test to make sure that all the laser light **4** is on the bar-code tape **3**.

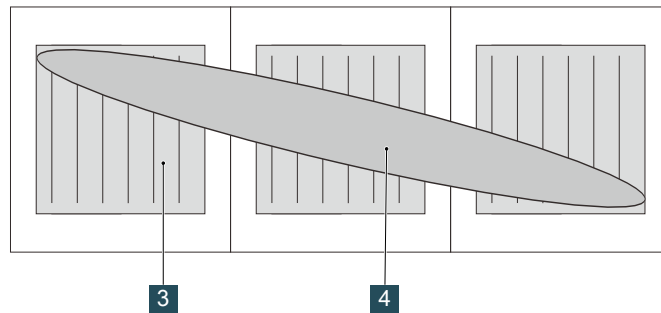


Figure 177: Optical test

11. Close the rear safety flap of the chassis.

Result The optical linear measurement sensor is replaced.

10.3.13 Replacing the Pressure Transmitter

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- 1. Open the rear door of the control console.
- 2. Disconnect all the cables and pipes that are connected to the pressure transmitter **2**.

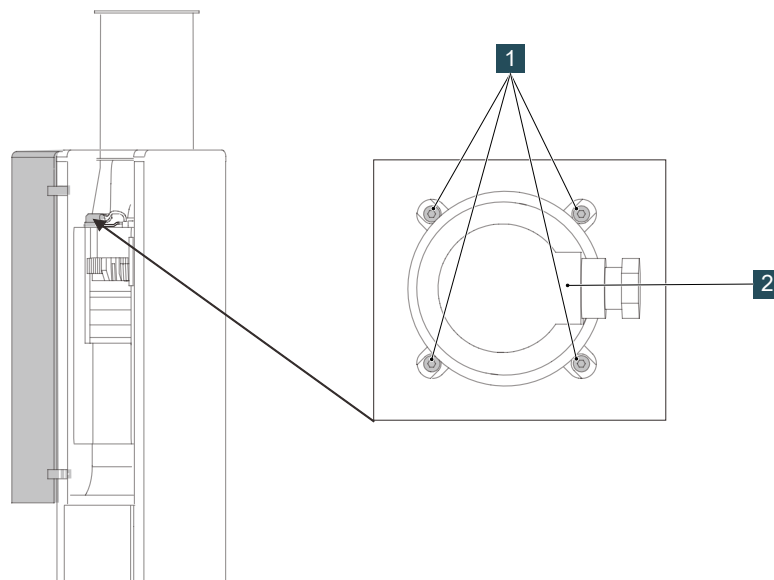


Figure 178: Pressure transmitter

- 3. Loosen the 4 screws **1** to remove the pressure transmitter **2**.
- 4. Install the new pressure transmitter.
- 5. Connect all the cables and pipes to the new transmitter.
- 6. Close the rear door of the control console.

Result The pressure transmitter is replaced.

10.3.14 Replacing the Battery of the Control System

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- 1. Open the rear door of the control console.
- 2. Make sure that the approved personnel for the repair work for the machine touches the installation rails with a hand to release the electrostatic charge from the body.
- 3. Remove the cover **1** of the battery of the control system.

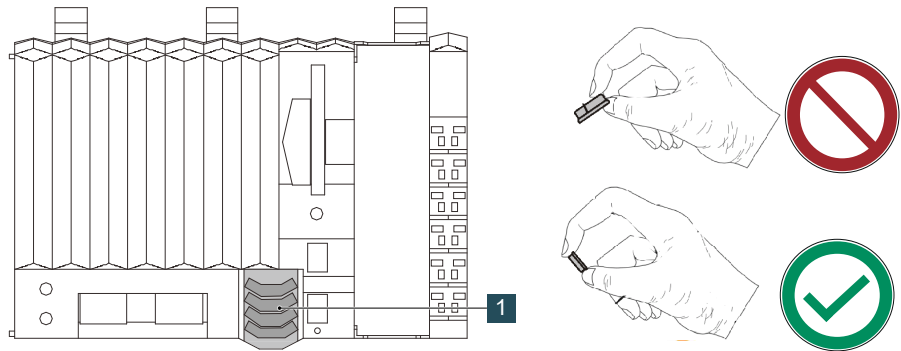


Figure 179: Control system

- 4. Remove the battery of the control system. Do not use pliers or uninsulated tweezers to hold the battery and obey local laws and regulations to discard the used battery.
- 5. Put the new battery into the holder.
- 6. Install the cover **1** of the battery.

Result The battery of the control system is replaced.

10.3.15 Setting the Panel T 30

The user sets the panel T 30 in one of the conditions that follow:

- The user replaces the panel T 30.
 - The user changes the adjustments of the panel T 30.
 - The panel T 30 does not connect to the system.
1. Open door and connect a USB mouse to the T30 panel.
 2. Open the service page by pressing the left and the right mouse buttons simultaneously for more than 2 seconds.
 3. If software version higher or equal 1.1.11 is installed, import the settings.
 4. Tap the area Update.
 5. Tap “Load settings from PLC”.

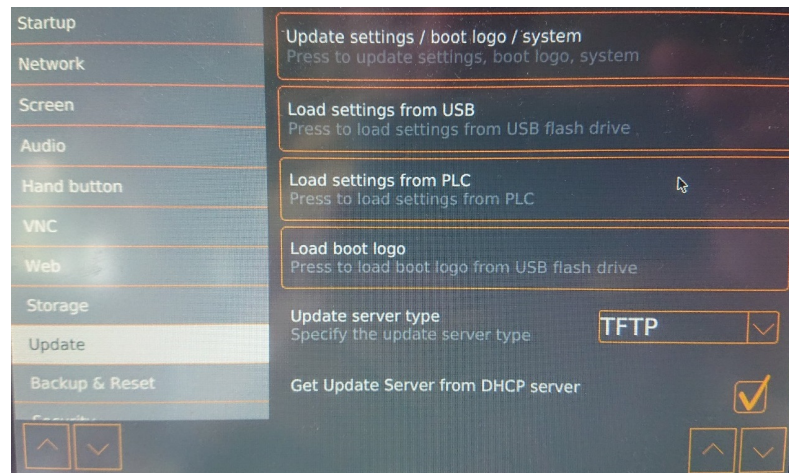


Figure 180: Load settings from PLC

6. Select "T30-7inch" settings and press Yes.

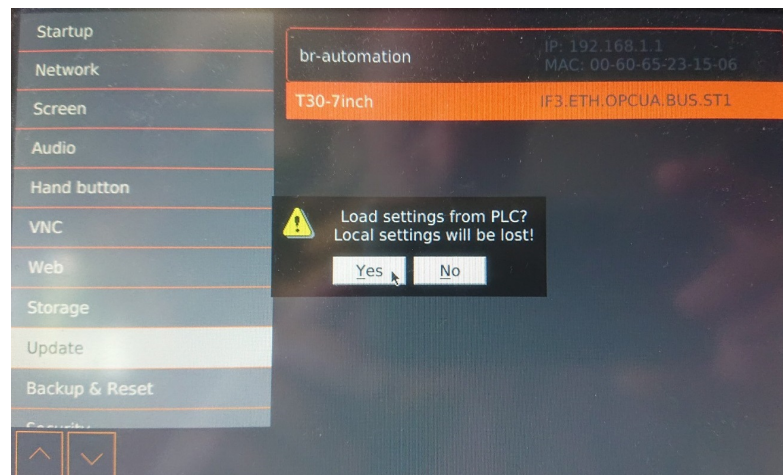


Figure 181: Load settings from PLC

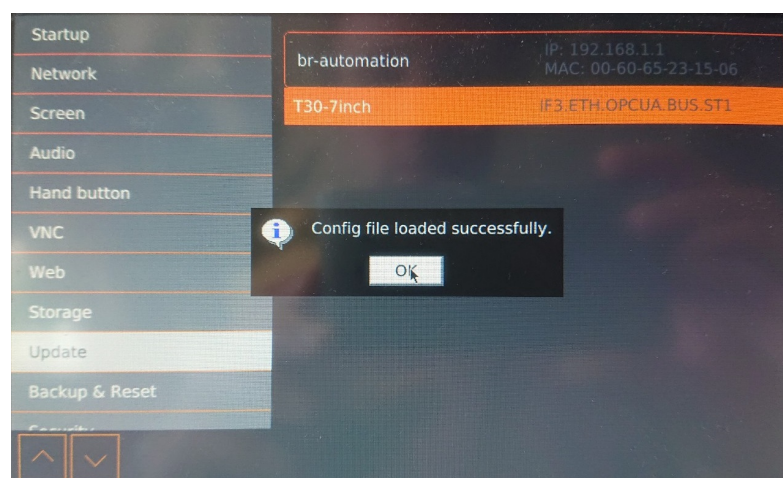


Figure 182: Load settings from PLC

7. Tap "Save changes and exit".

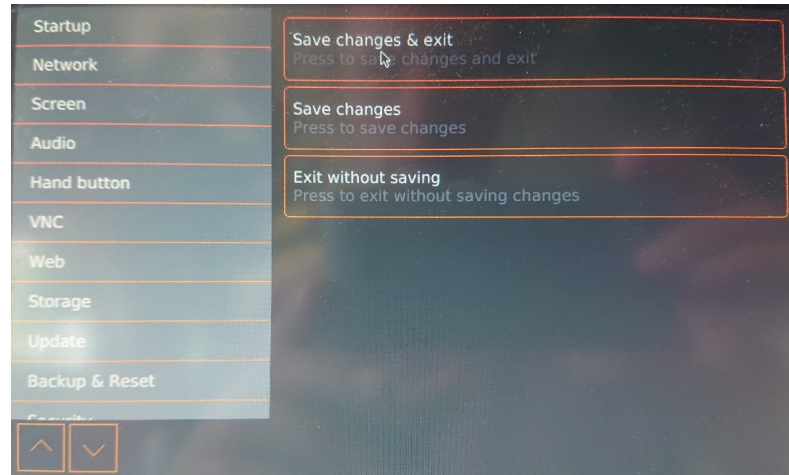


Figure 183: Load settings from PLC

8. If the settings import in the step 3 does not work, set it up as described below:
9. Tap the area **VNC 3**.

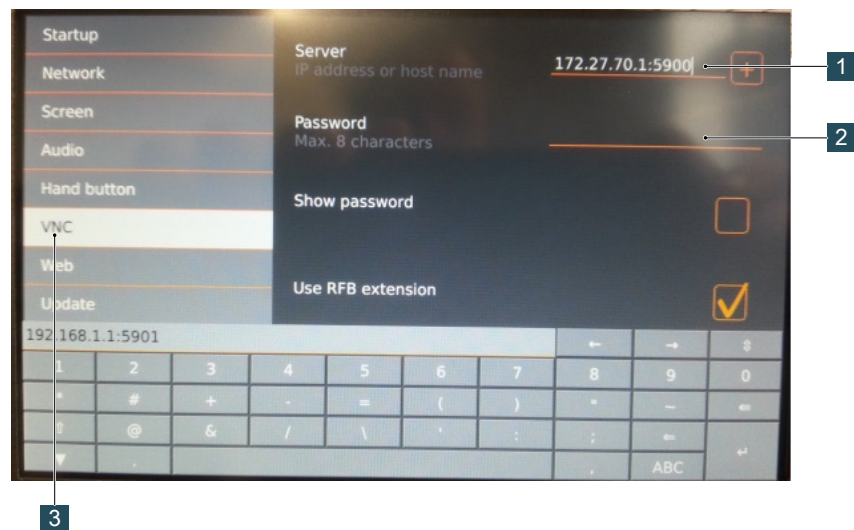


Figure 184: Screen T 30 setting_2

10. Enter the server code 192.168.1.1:5901 at the input area **1**.
11. Enter the password w at the input area **2**.
12. Tap the area **Screen 4**.

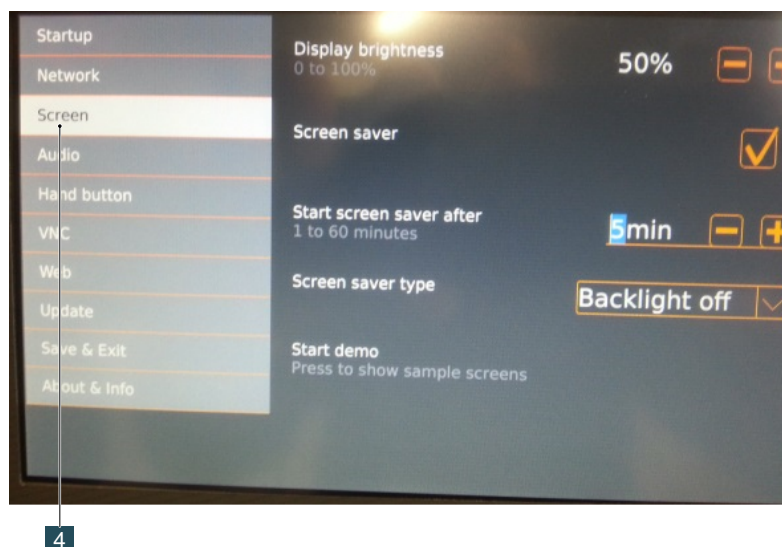


Figure 185: Screen T 30 setting_3

13. Set the parameters in the screen.
14. Disable the **Hand button** 5.

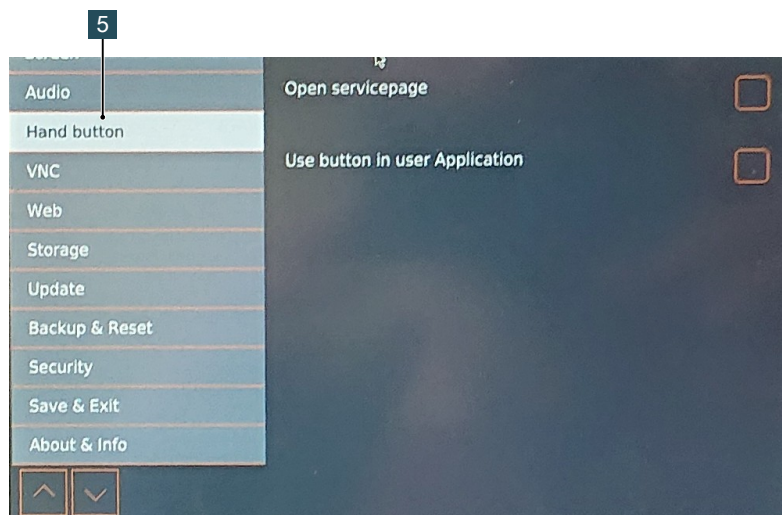


Figure 186: Hand button

15. Tap the area **Startup** 6.



Figure 187: Screen T 30 setting_5

16. Select the area **VNC** 7 from the drop-down list.
17. Tap the area **Save & Exit** 9.

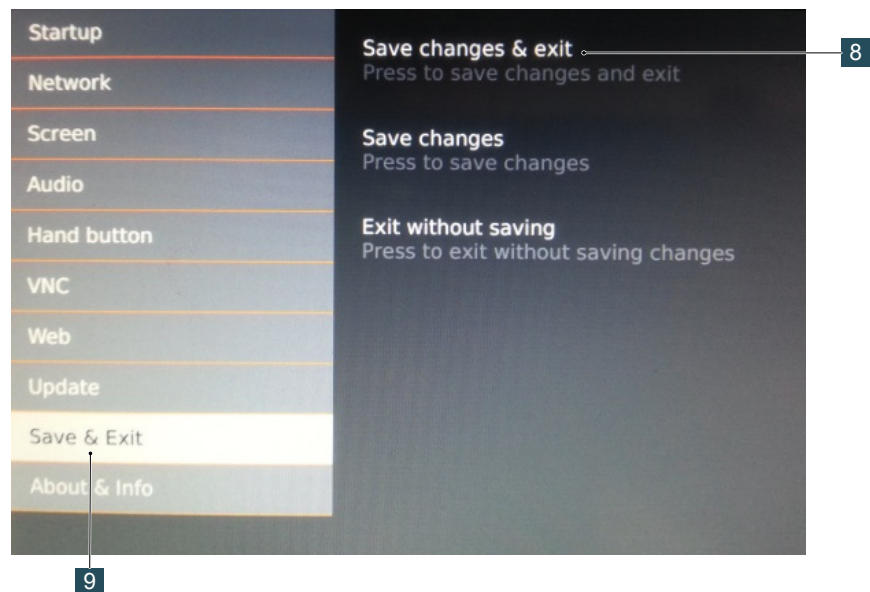


Figure 188: Screen T 30 setting_6

18. Tap the function **Save changes & exit** 8.
- ⇒ The A12 data screen shows.

Result The panel T 30 is set.

10.3.16 Replacing the Safety Modules

In the tower and the control console the safety modules are installed.

10.3.16.1 The Electrical Cabinet of the Tower

Prerequisites Make sure that the criteria are obeyed:

✓ The main switch is set to the OFF position and padlocked.

1. Open the tower door **1**.
2. Open the electrical cabinet door **2**.

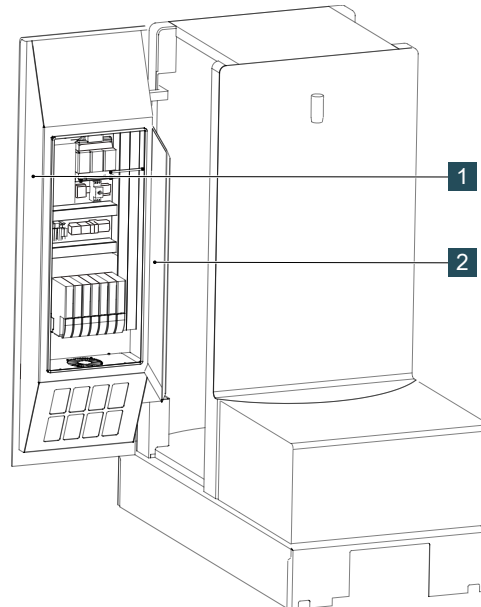


Figure 189: Tower electrical cabinet

3. Remove the safety modules **3**.

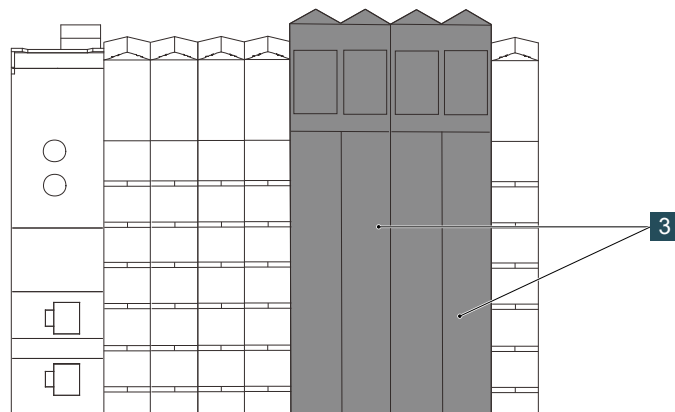


Figure 190: Safety module

4. Install the new safety modules.
5. Close the electrical cabinet door **2**.
6. Close the tower door **1**.
7. Set the main switch to the ON position.
8. Initialize the safety modules in the data screen 4.3.4.

Result The safety modules are replaced.

10.3.16.2 The Electrical Cabinet of the Control Console

Prerequisites Make sure that the criteria are obeyed:

- ✓ The main switch is set to the OFF position and padlocked.
- 1. Open the rear door of the control console.
- 2. Remove the safety module **1**.

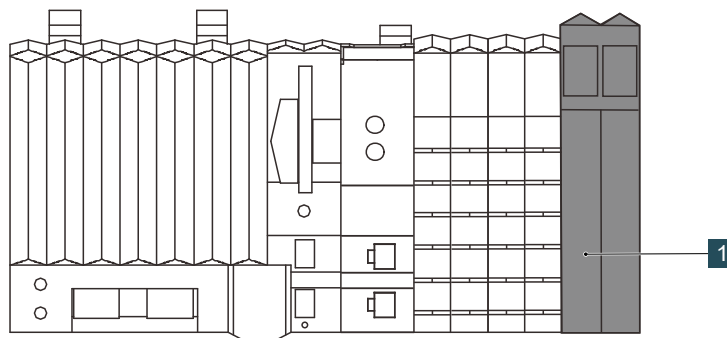


Figure 191: Safety module

- 3. Install the new safety module.
- 4. Close the rear door of the control console.
- 5. Set the main switch to the ON position and start the machine.
- 6. Initialize the safety modules in the data screen 4.3.4.

Result The safety module is replaced.

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11 Decommissioning and Storage

This chapter contains the information about:

- The personnel
- The temporary decommissioning of the machine
- The final decommissioning of the machine
- The storage of the machine

11.1 Decommissioning Personnel

Only Rieter approved personnel are permitted to do the decommissioning and storage of the machine.

11.2 Measures for the Decommissioning and Storage

Temporary Decommissioning

A temporary decommissioning is a decommissioning only for a short time because of a shutdown. The purpose is to set the machine back into operation after the end of the shutdown.

These temporary decommissioning works are to be done:

1. Remove the fiber material from the machine.
2. Remove all operation fluids from the machine. Obey the national regulations for the storage or the disposal of all operation fluids.
3. Set the main switch to the position OFF. Padlock the main switch.
4. Disconnect the compressed-air supply.
5. Decrease the machine temperature to the ambient temperature.
6. Remove the tension from the timing belts, the flat belts, or the V-ribbed belts.
7. Clean the machine and all technology components correctly. Prevent the machine and all technology components from corrosion and impurities.

Final Decommissioning

The purpose of a final decommissioning is to prepare the machine:

- For the storage for a longer period
- For the transport to a different location
- For the disposal

These conditions for the final decommissioning are to be completed:

1. Remove the fiber material from the machine.
2. Remove all operation fluids from the machine. Obey the national regulations for the storage or the disposal of all operation fluids.

3. Set the main switch to the position OFF. Padlock the main switch.
4. Disconnect the compressed-air supply.
5. Disconnect the power supply to the machine.
6. Decrease the machine temperature to the ambient temperature.
7. Remove the tension from the timing belts, the flat belts, or the V-ribbed belts.
8. If the machine is prepared for the storage, clean the machine and all technology components correctly. Prevent the machine and all technology components from corrosion and impurities.
9. Disassemble the machine into units that stay in a safe condition during the transport.
10. Use the initial transport locks and the initial package materials. Obey the transport regulations. *Packaging and Transportation* ► 57

Storage

1. Keep the machine in a clean and dry room. Put the machine and machine parts on a flat surface. Identify the machine with an identification mark.
2. Prevent unauthorized personnel to go into the storage room.

12 Disposal of the Machine

This chapter contains the information about the disposal of the machine.

12.1 Disposal of the Machine

This chapter contains the information about the disposal of the machine after the end of the service life.

The machine owner has the responsibility for the correct disposal of the machine.

The instructions in the chapters that follow are to be obeyed:

- Safety
- Packaging and Transportation
- Decommissioning and Storage

The national regulations for the disposal of the machine and all operation fluids, batteries, and package materials are to be obeyed.

The disposal includes:

- Reusability
- Recycling
- Disposal of waste

The materials are to be divided in relation to the material group. The materials are to be given to the correct collection point:

- Steel
- Copper
- Brass
- Rubber
- Electronic waste
- Cast iron
- Glass
- Plastics
- Liquid materials
- Dangerous waste

The machine manufacturer Rieter is to be told about the disposal of the machine.

E-mail: info@rieter.com

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13 Appendix

This chapter contains the information about:

- Tightening torque standard
- Tools and gauges

13.1 Tightening Torque Standard

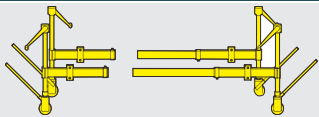
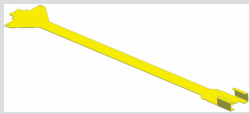
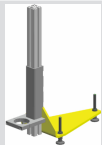
Screw Dimension	Strength Class	Tightening Torque [Nm]	Clamping Force [kN]
M4 Coefficient of friction 4G = 0.14	4.8 (welding stud)	1.5	--
	8.8	3.1	3.9
	10.9	4.5	5.7
	12.9	5.3	6.7
M5	4.8 (welding stud)	3.0	--
	8.8	6.1	6.4
	10.9	8.9	9.3
	12.9	10.4	10.9
M6	4.8 (welding stud)	5.0	--
	8.8	10.4	9.0
	10.9	15.5	13.2
	12.9	18.0	15.4
M8	4.8 (welding stud)	13.0	--
	8.8	25.0	16.5
	10.9	37.0	24.2
	12.9	43.0	28.5
M10	4.8 (welding stud)	25.0	--
	8.8	51.0	26.0
	10.9	75.0	38.5
	12.9	87.0	45.0
M12	8.8	87.0	38.5
	10.9	130.0	56.0
	12.9	150.0	66.0
M16	8.8	215.0	72.0
	10.9	310.0	106.0
	12.9	370.0	124.0
M20	8.8	430.0	117.0
	10.9	620.0	166.0

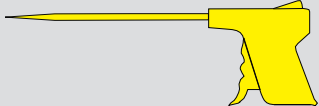
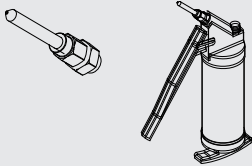
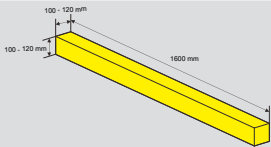
Screw Dimension	Strength Class	Tightening Torque [Nm]	Clamping Force [kN]
M24	12.9	720.0	194.0
	8.8	740.0	168.0
	10.9	1080.0	239.0
	12.9	1240.0	280.0

13.2 Tools and Gauges

This chapter contains the Rieter specific tools and gauges for:

- The transport of the machine
- The installation of the machine
- The maintenance of the machine
- The repair of the machine

Tool	Tool Name	Function Description
	Caster jack with bracket	The caster jacks with brackets are used to move the machine components.
	Height setting gauge	The height setting gauge is used to install the channel unit.
	Distance gauge	The distance gauge is used to adjust the rails during rail installation.
	Drill gauge 1	The drill gauge 1 is used to drill holes for anchor bolts.
	Drill gauge 2	The drill gauge 2 is used to drill holes for anchor bolts.
	Jig	The jig is used to drill holes for anchor bolts.

Tool	Tool Name	Function Description
	Drilling machine (Hilti TE 30-M)	The drilling machine is used to drill holes for anchor bolts.
	Roller picker	The roller picker is used to pick up the materials that are collected around the rollers and other machine parts.
	Grease gun	The grease gun is used for lubrication works. 1 stroke = 0.333 cm ³
	Distance bar	The distance bar is used to keep the distance between machine components.

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Glossary

Chassis

Electro - mechanical device which holds the tower. It moves horizontally back and forth. It is guided by a rail system.

Tower

Device which holds the take-off unit. It can rotate by 180°.

EIS

Equipment identifying symbol

Flock Feeder Channel

A machine part where the tufts go through.

Take-off Roller

Mechanical moving part which holds wobble disks, by which the cotton is being removed from the bale in form of tufts.

Take-off Unit

Mechanical movable part, which holds wobble disks, by which the cotton is removed from the bale in the shape of tufts.

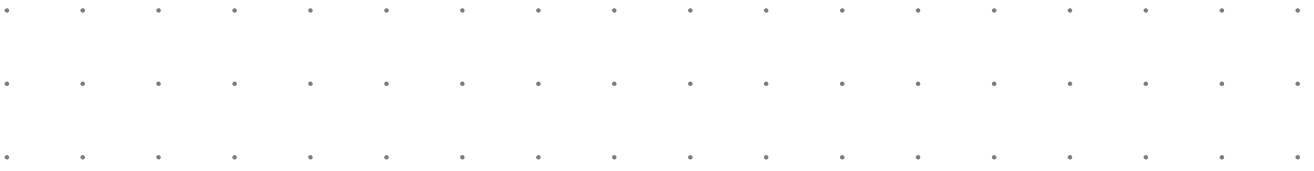
Tuft

Small piece of cotton being removed from the bale by the wobble disks.

Wobble Disks

An arrangement of hardened steel disks which are mounted onto the take-off roller. The hardened steel disks are turning continuously and remove cotton from the bale in form of tufts.

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